

Before the
COPYRIGHT ROYALTY BOARD
LIBRARY OF CONGRESS
Washington, D.C.

In the Matter of)

Adjustment of Rates and Terms for)
Preexisting Subscription and Satellite)
Digital Audio Radio Services)

Docket No. 2006-1 CRB DSTRA

Expert Report of Dr. John R. Woodbury
October 30, 2006

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1 **I Qualifications**

2 My name is John R. Woodbury and I am a vice president at CRA International, an
3 economics and business consulting firm, where I have been employed since 1992. I
4 received my B.A. from the College of the Holy Cross (*summa cum laude*) and my M.A.
5 and Ph.D. in Economics from Washington University (St. Louis). Among other
6 positions, I have served as a Brookings Economics Policy Fellow at the Civil Aeronautics
7 Board, as a Senior Economist on the Network Inquiry Special Staff of the Federal
8 Communications Commission, as Vice President for Research and Policy Analysis at the
9 National Cable Television Association (now the National Cable and Telecommunications
10 Association), and as Associate Director for Special Projects in the Bureau of Economics
11 of the Federal Trade Commission.

12 I have been involved in numerous matters regarding intellectual property. During
13 my tenure at the National Cable Television Association, I served as staff liaison to the
14 Association’s Copyright Committee, charged with overseeing economic initiatives and
15 proceedings before the Copyright Royalty Tribunal. In that capacity, I was responsible
16 for analyzing the empirical basis for the then 3.74% distant signal compulsory license fee
17 and for estimating the appropriate inflation adjustment for distant signal payments made
18 by cable operators and for presenting those findings to various claimant groups. In
19 addition, I was part of a small negotiating team that included the Association’s President
20 and the Chairman of its Executive Committee whose purpose was to determine whether
21 an agreement could be reached with the Motion Picture Association of America
22 (“MPAA”) on simplifying the copyright royalty payment scheme.

23 I have testified a number of times before the Copyright Royalty Tribunal and
24 before the Copyright Arbitration Royalty Panel (“CARP”) as a rebuttal witness on behalf
25 of MPAA addressing issues dealing with the distribution of distant signal license
26 payments. I provided both direct and rebuttal testimony on behalf of Music Choice
27 (formerly known as DCR) and DMX in the first CARP under the Digital Performance
28 Right in Sound Recordings Act of 1995. I (along with my colleague, Jane Murdoch) also
29 provided written direct and rebuttal testimony on behalf of the Corporation for Public
30 Broadcasting and National Public Radio addressing reasonable license fees for the public

1 performance of sound recordings by public radio entities on their Internet sites. Most
2 recently, I provided both direct and rebuttal testimony on behalf of Music Choice
3 regarding the appropriate rate to be paid to BMI for performances of musical
4 compositions. My *curriculum vitae* is attached as Exhibit 1 to this report.

5 **II Overview**

6 I have been asked by Sirius and XM to estimate a reasonable rate to be paid for
7 the sound recording performance right (“SRPR”) when these services transmit
8 performances of sound recordings to subscribers of satellite radio. I understand that in
9 this regard, Sirius and XM satisfy the definition of pre-existing services in the Digital
10 Performance Right in Sound Recordings Act of 1995 (“Act”).¹ From that same Act, I
11 understand that the Copyright Royalty Board (“CRB”) must choose a rate that satisfies
12 four statutory objectives (“801(b) objectives”):

- 13 (A) To maximize the availability of creative works to the public;
- 14 (B) To afford the copyright owner a fair return for his creative work and the
15 copyright user a fair income under existing economic conditions;
- 16 (C) To reflect the relative roles of the copyright owner and the copyright user in
17 the product made available to the public with respect to relative creative
18 contribution, technological contribution, capital investment, cost, risk, and
19 contribution to the opening of new markets for creative expression and media
20 for their communication;
- 21 (D) To minimize any disruptive impact on the structure of the industries involved
22 and on generally prevailing industry practices.²

23 As a general matter, there are a number of avenues available to an economist (and
24 the CRB) for identifying an appropriate price for a good or service. In some cases,
25 factors that identify the demand for and the supply of a good or service are readily
26 available and can be used to estimate a market-clearing price, i.e., a price at which the
27 quantity demanded and supplied are equated. Numerous transactions across buyers and
28 sellers or across time enable the use of this approach. Another common approach to

¹ Pub. L. No. 104-39, 109 Stat. 336 (1995).

² 17 U.S.C. 801(b)(1).

1 identifying a price is to search for a comparable product whose price can be used as a
2 benchmark. For example, suppose a policy maker was concerned that a price of a good
3 or service reflected market or monopoly power on the part of the seller. An economist
4 could look to the sale of similar goods or services being sold but under more competitive
5 conditions and compare that price to the price in the market of concern. While these
6 comparisons are not perfect, economists are usually able to account for the relevant
7 differences in the good or service in question to permit an “apples to apples” comparison.

8 In conducting previous analyses of appropriate royalties, I have sought
9 benchmark rates associated with services that are generally analogous to the services and
10 the rights for which the rate is being determined. In these kinds of rate-setting
11 proceedings, the identification of useful benchmarks provides a sound starting point for
12 determining the appropriate payment between the parties for the sound recording
13 performance right in accordance with section 801(b) of the Act. I, like other economists,
14 would regard rates negotiated at arms-length as a promising start to developing the rate in
15 question. Similarly, a useful start would be rates that have been determined by a third
16 party, such as the CRB and the courts.

17 The benchmark approach to rate-setting for performance rights is also a familiar
18 one in these kinds of proceedings. For example, the Librarian of Congress, in the 1998
19 rate setting proceeding concerning the sound recording statutory license for non-exempt
20 digital transmission services, quoted a 1980 proceeding for coin-operated phonorecord
21 players, in which the Tribunal wrote, “While acknowledging that our rate cannot be
22 directly linked to marketplace parallels, we find that they serve as an appropriate
23 benchmark to be weighed together with the entire record and the statutory criteria.”³
24 However, courts recognize that the benchmark may need to be adjusted based on
25 contrasts between the benchmark and the target settings. In its recent Music Choice—
26 BMI decision, the Second Circuit, quoting an earlier decision, stated, “In choosing a
27 benchmark and determining how it should be adjusted, a rate court must determine ‘the
28 degree of comparability of the negotiating parties to the parties contending in the rate

³ Library of Congress, Copyright Office 37 CFR Part 260, Docket No. 96-5 CARP DSTR, Determination of Reasonable Rates and Terms for the Digital Performance of Sound Recordings, Federal Register, Volume 63, No 89, May 8, 1998 (“Librarian Decision 1998”) at 25404, quoting 1980 Adjustment of the Royalty Rate for Coin-Operated Phonorecord Players, 46 FR 884, 888 (1981).

1 proceeding, the comparability of the rights in question, and the similarity of the economic
2 circumstances affecting the earlier negotiators and the current litigants.’”⁴

3 I have concluded that one possible benchmark is the rate paid by the pre-existing
4 subscription services (“PSS”)—Music Choice, DMX, and Muzak—for the SRPR after
5 suitable adjustments and after accounting for the 801(b) factors as they apply to XM and
6 Sirius. As discussed below, this rate was originally established in the 1998 proceeding at
7 6.5% and then renegotiated in 2003 to 7.25%.

8 Upon consideration of the nature of the service provided by the PSS on one hand,
9 and XM and Sirius on the other, I have identified a number of substantive differences
10 between the services that result in adjustments to the 7.25% rate. One difference stems
11 from the end-to-end functionality of XM and Sirius, another from the mobility of the XM
12 and Sirius services, and still another from the suite of music and non-music channels
13 offered by the services. Music Choice, for example, offers a suite of commercial-free
14 music channels sold to third-party providers, who in turn deliver the service to consumers
15 as part of a bundle of services for in-home listening. By contrast, XM and Sirius provide
16 both music and non-music channels in a complete, end-to-end package for mobile,
17 nationwide listening (including in-vehicle and in-home listening) directly to subscribers.
18 The importance of these kinds of differences in the services was acknowledged in the
19 earlier appellate ruling in the Music Choice—BMI litigation cited above: “If it were
20 demonstrated that retail purchasers were motivated to pay more because of advantages
21 that resulted from a particular mode of delivery, such as better quality, better accessibility
22 or whatever, this might justify a conclusion that retail price of the service purchased by
23 the customer exceeded the fair market value of the music.”⁵ My analysis incorporates
24 this insight.

25 A second benchmark is the payments made by XM and Sirius to ASCAP, BMI,
26 and SESAC for the musical works rights that underlie the public performance of a sound
27 recording, the proceeds of which are distributed to music publishers and composers. The

⁴ United States v. Broad. Music, Inc., 04-3444-CV, 2d Cir., Oct. 6, 2005 at p. 8, quoting United States v. ASCAP (Application of Buffalo Broad. Co., Inc.), No. 13-95 (WCC), 1993 U.S. Dist. LEXIS 2566, at *61 (S.D.N.Y. Mar. 1, 1993).

⁵ United States v. Broad. Music, Inc., 316 F.3d 189 (2d Cir. 2003) at 196 n.3.

1 acquisition of both the musical works rights and the SRPR are necessary for a user to
2 provide a public performance of the sound recording.

3 The analyses of these two benchmarks lead to rate estimates ranging from
4 [[] to [[] of the gross revenues of XM and Sirius.

5 I have also evaluated how accounting for the 801(b) factors would affect where in
6 this range the rate should be set. Among other conclusions, it is my opinion that XM and
7 Sirius generally outperform the PSS with respect to enhancing the availability of music,
8 have made more significant creative contributions (e.g., in the creation of enhancements
9 to the music channels as well as original non-music programming), technological
10 contributions (e.g., the development of a mobile, end-to-end satellite system), and
11 investments. They have incurred greater costs and risk than the PSS, and they have done
12 (and will continue to do) more to open new markets in providing their services, relative to
13 the PSS. I make similar observations with respect to XM and Sirius relative to the record
14 labels. As a result, I conclude that a fair rate under the Act is one that would be at the
15 lower end of the range.

16 In forming my opinions, I have reviewed a variety of materials. In particular, I
17 have reviewed XM's and Sirius' financial statements and the results of market surveys
18 conducted by XM and Sirius, as well as various analyst reports. I have interviewed
19 business people at XM and Sirius to better understand the nature of their business. At
20 XM, these executives include Eric Logan, Executive Vice President of Programming;
21 Mark Vendetti, Senior Vice President of Corporate Finance; John Kramer, Vice President
22 of Corporate Finance; Stephen Cook, Executive Vice President, Automotive (previously
23 Executive Vice President of Sales and Marketing); John Dealy, Senior Advisor to the
24 CEO; and Tony Masiello, Senior Vice President of Operations. At Sirius, these
25 executives include David Frear, Chief Financial Officer; Michelle McKinnon, Director of
26 Investor Relations; and Douglas Kaplan, Senior Vice President, Business Affairs and
27 Development, Entertainment and Sports. I have also reviewed previous decisions relating
28 to the determination of reasonable fees paid by Music Choice to BMI and to the
29 Recording Industry Association of America ("RIAA"), as well as my own expert reports
30 in these matters. In addition, I have reviewed publicly available information on the
31 promotional value of satellite radio to recording artists and record labels as well as

1 internal information provided by XM and Sirius. I have compiled a list of these materials
2 contained in Exhibit 2.

3 The analysis that I present in this report has been performed by me or under my
4 direction. As additional evidence becomes available prior to trial, I reserve the right to
5 refine my analysis.

6 In the next section, I provide a description of the XM and Sirius services. In
7 Section IV, I discuss the benchmark approach and introduce the potential benchmark
8 rates available for my analysis of the SRPR fee to be paid by XM and Sirius. In Section
9 V, I discuss the first potential benchmark, the SRPR rate paid by the PSS, and the
10 adjustments to this benchmark that are required to make the analogy appropriate. In
11 Sections VI to IX, I present the conceptual framework, the implementation of the various
12 adjustments, as well as a summary of the rate estimates based on the PSS rate. In Section
13 X, I discuss the second potential benchmark – the rates paid by XM and Sirius to the
14 Performance Rights Organizations (“PROs”). In Section XI, I address the 801(b) factors
15 as they apply to XM and Sirius. The final section summarizes my conclusions.

16 **III The XM and Sirius Services**

17 Sirius and XM compete with each other, as well as with terrestrial radio and other
18 ways of spending discretionary time, to attract and retain subscribers to their subscription
19 radio services. These services are designed primarily for listening in a car or other
20 vehicles and can also be used for in-home listening. Because they are satellite delivered,
21 each service is available throughout the United States, for a monthly subscription fee that
22 is currently \$12.95.⁶ Sirius’ service consists of nearly 130 digital channels, including 66
23 commercial-free music channels, 3 comedy channels, 2 kids’ channels, and 56 non-music
24 channels.⁷ Similarly, XM’s service consists of more than 170 digital channels, including
25 69 commercial-free music channels, 4 comedy channels, 2 kids’ channels, the 5 music

⁶ Both companies also offer subscription fee discounts for purchases of additional radios or commitments to annual or other longer-term subscriptions. XM Service & Subscription at http://www.xmradio.com/service_subscription/service_subscription.jsp?refsrc=hp_gs. Sirius Plans, at <http://www.sirius.com/servlet/ContentServer?pagename=Sirius/CachedPage&c=Page&cid=1150907696769>.

⁷ Reported channel counts were compiled by CRA and are based upon a complete listing of Sirius’ channels, obtained from the Sirius website as of September 26, 2006.

1 channels programmed by Clear Channel, and 93 non-music channels.⁸ (See Exhibits 3
2 and 4, which present the complete list of XM and Sirius channels, respectively.)
3 Channels that use commercially released sound recordings include the commercial-free
4 music, the comedy channels, and the kids channels; and, in the case of XM, they also
5 include the channels programmed by Clear Channel. In the analysis that follows, I refer
6 to “music channels” as all channels that use commercially released music. For Sirius,
7 this represents a total of 71 channels, and for XM, 80 channels.

8 The services that Sirius and XM provide require a license from the FCC, a
9 process that took 5 years from the start of the FCC license proceeding to the time the
10 licenses were awarded in 1997.⁹ Indeed, I understand that Sirius had begun efforts to
11 persuade the FCC to issue a license as early as 1990.

12 In order to provide an end-to-end mobile service with a national footprint, Sirius
13 and XM each undertook substantial infrastructure investments. For example, I
14 understand that each firm had to develop or assist in the development of a suitable audio
15 compression system to “fit” the channels into a single encrypted signal while maintaining
16 the audio quality of the service. XM and Sirius also had to develop their own uplink
17 systems that transmit the service signal to the satellite and (in this case) authorize the
18 receipt of the signal by a subscriber. These systems were not off-the-shelf systems.

19 In addition to developing a customized uplink to the satellite, Sirius and XM were
20 each responsible for building, launching, and tracking their own satellites. Each service
21 has developed its own satellite system to provide a service that would permit radios in
22 cars (and other moving vehicles) to receive a satellite signal within a nationwide
23 footprint. My understanding is that a signal by a conventional satellite would be too weak
24 to be received by anything but an earth station of substantial size, likely too large to fit on
25 the roof of a car. The satellites developed by the two services were designed to be
26 powerful enough to be received by a small antenna on a moving vehicle anywhere in the
27 country.

⁸ As with Sirius, reported channel counts were compiled by CRA and are based upon a complete listing of XM’s channels, obtained from the XM website as of September 26, 2006. The five Clear Channel transmissions include commercials.

⁹ See FCC News Report No. IN 97-4, “FCC Announces Plan for Satellite DARS,” at http://www.fcc.gov/Bureaus/International/News_Releases/1997/nrin7004.txt.

1 Sirius owns and operates three satellites—launched in 2000—in a highly inclined
2 elliptical orbit above North America, meaning that the Sirius satellites rise and set over
3 the United States.¹⁰ Once a satellite moves below the horizon, its transmission cannot be
4 received. Accordingly, two of Sirius’ satellites are always above the country, beaming
5 their signal from that orbit. In addition, the Sirius satellites are positioned in such a way
6 that the signal travels to the earth at a steep angle, thus reducing most of the interference
7 from tall buildings, trees, and other obstacles. To handle the remaining reception
8 difficulties, Sirius has constructed a network of 140 terrestrial repeaters that receive the
9 Sirius signal and retransmit the signal to subscribers.¹¹

10 XM owns and operates three satellites, each covering the continental United
11 States from widely separated positions in geostationary orbit over the equator.^{12,13} Two
12 satellites were launched in March and May of 2001 (and are currently co-located in one
13 orbital slot due to faster than expected equipment degradation) and the third was
14 launched in February, 2005. One replacement satellite (XM-4) is scheduled to be
15 launched this year, and another new satellite (XM-5) will serve as a ground spare.¹⁴ XM
16 uses an extensive network of approximately 800 terrestrial repeaters located throughout
17 the continental United States.¹⁵

18 My understanding is that the repeaters of both services were again not off-the-
19 shelf, but were designed to provide the subscriber with a seamless listening experience.

¹⁰ Sirius also maintains a fourth satellite on the ground, ready to be launched in the event that one of its three active satellites fails. See 2005 Form 10-K, Sirius Satellite Radio Inc, p. 7.

¹¹ 2005 Form 10-K, Sirius Satellite Radio Inc, p. 8.

¹² Telesat Canada monitors and controls the satellites for XM. Sea Launch provided launch services. XM Fast Facts, at http://www.xmradio.com/corporate_info/fast_facts.html; 2005 Form 10-K, XM Satellite Radio Holdings Inc., p. 28.

¹³ Like Sirius, one of XM’s satellites broadcasts 4.7 seconds ahead of the other, providing a memory buffer. (I understand that the third XM satellite is a spare in the event that either one of its other two satellites fail.) “About Sirius,” at <http://www.sirius.com/servlet/ContentServer?pagename=Sirius/CachedPage&c=Page&cid=1018209032792>. Heltzel, Paul, “Tuning In to Satellite Radio,” January 25, 2002, Technology Review, at http://www.technologyreview.com/read_article.aspx?id=12736&ch=infotech. I understand that a fourth XM satellite will be launched shortly; see 2005 Form 10-K, XM Satellite Radio Holdings Inc., p. 12.

¹⁴ See 2003 Form 10-K, XM Satellite Radio Holdings Inc., pp. 12, 14; 2005 Form 10-K, XM Satellite Radio Holdings Inc., p. 12; and Satellite Radio Outlook, Kagan Research, LLC, July 2005, p. 21.

¹⁵ 2005 Form 10-K, XM Satellite Radio Holdings Inc., p. 13.

1 Because traditional AM/FM radios cannot receive satellite signals, XM and Sirius
2 had to develop their own radios, with customized chipsets that allow the requisite
3 functionality. I understand that XM’s proprietary chipset consists of two custom
4 integrated circuits that process satellite and repeater signals and decode audio and data
5 streams, enabling channel tuning and providing for the display of information. I also
6 understand that Sirius has undertaken similar efforts. These radios receive and decrypt
7 the digital data signal from specially-designed satellite transponders and repeaters. In
8 addition to the encoded sound, these devices can also unscramble additional information
9 transmitted by the services—such as the song title, the artist, and the genre of music and
10 other information—for display on the radio. Finally, I understand that both companies
11 have developed algorithms to minimize signal interruption where the signal may be
12 weak.

13 XM and Sirius expend substantial resources in attracting and retaining
14 subscribers. Each service has third-party arrangements for the sale of radios. One
15 significant sales channel for both companies is the automotive original equipment
16 manufacturer (“OEM”). XM and Sirius have arrangements with numerous car
17 manufacturers for the installation of XM and Sirius radios in the OEM’s vehicles. These
18 OEMs include GM, Toyota, Honda, and Nissan for XM, and they include Ford, Chrysler,
19 BMW, Audi/VW, and KIA for Sirius.¹⁶ Both services subsidize the cost of the radio, the
20 design of the space in the vehicle where the radio is located, its installation in the vehicle,
21 and the training of OEM salespeople with respect to the services. The OEMs also
22 generally receive a share of subscription revenues for all car buyers who activate a
23 regular subscription to the services after the free trial period. This revenue share provides
24 incentives to the OEMs to advertise the subscription radio service and, ultimately, to
25 increase sales of cars with preinstalled receivers.

26 In addition, XM and Sirius have third-party deals with a number of retailers, such
27 as Wal-Mart, Best Buy, and Target, for the sale of the radios and the monthly service.¹⁷
28 The services pay these retailers for shelf space, provide them with sales training, and

¹⁶ 2005 Form 10-K, XM Satellite Radio Holdings Inc., p. 2; 2005 Form 10-K, Sirius Satellite Radio Inc, pp. 2-3.

¹⁷ 2005 Form 10-K, XM Satellite Radio Holdings Inc., pp. 5, 37; 2005 Form 10-K, Sirius Satellite Radio Inc, p. 5.

1 offer a commission on sales. The radios can also be purchased online directly from XM
2 and Sirius.

3 Of course, the cost of the radio can represent a significant deterrent to
4 subscription sales. To lower this cost to subscribers, Sirius and XM engage in a variety
5 of subsidies and revenue sharing arrangements. For example, []
6
7

8]]

9 In addition, Sirius and XM have state-of-the-art broadcast studio facilities located
10 in New York City and Washington D.C., respectively, used for live performances and for
11 the production of original programs. The XM broadcast center covers 150,000 square
12 feet and includes some 80 programming and broadcast studios.¹⁸ XM's state-of-the-art
13 network storage and server infrastructure is capable of broadcasting more than two
14 million recorded tracks. Besides the main studio in Washington, XM has additional
15 broadcast studios in New York City, Chicago, and Nashville.¹⁹

16 Similarly, Sirius has state of the art, all digital studio facilities around the country,
17 including New York City, Houston, Memphis, Nashville, and Los Angeles.²⁰ These
18 studios allow Sirius to record and broadcast live performances as well as to produce
19 original programming for the various channels. It also has a network server infrastructure
20 comparable to that of XM. These are two of the largest broadcasting facilities in the
21 world.

22 Exhibit 5 presents a simplified illustration of how the XM and Sirius system
23 works. The programming is prepared at services' studio and production facilities and
24 then "uplinked" or transmitted by each service to its satellite system. The signal is then
25 beamed back down to earth for reception by a radio or to a repeater which then
26 retransmits the signal to the subscriber's radio.

¹⁸ "XM Studios," at http://www.xmradio.com/how_it_works/xm_studios.html.

¹⁹ 2005 Form 10-K, XM Satellite Radio Holdings Inc., p. 10.

²⁰ 2005 Form 10-K, Sirius Satellite Radio Inc, p. 8.

1 **IV Identifying a Benchmark Rate**

2 The ideal benchmark rate would be a competitively-negotiated, arms-length rate
 3 for a right perfectly analogous to the SRPR by a service that is perfectly analogous to XM
 4 and Sirius and reflects the application of 801(b) factors. While perfect analogies are not
 5 usually available, there nonetheless may be services and rates sufficiently comparable to
 6 those being examined that they can provide useful benchmarks. With respect to a
 7 generally analogous service, economists look to services that are similar to those whose
 8 rates are at issue, making adjustments where appropriate to account for any significant
 9 differences. With respect to an analogous rate, economists look to fees paid for rights
 10 that are comparable to those at issue, making adjustments where appropriate to account
 11 for any significant differences in the rights.

12 In subsequent sections of this report, I discuss two rates that can be used as
 13 starting points to estimate a reasonable rate for XM and Sirius. One benchmark is the
 14 current rate paid by the PSS for the SRPR. The advantage of this benchmark is that the
 15 services are generally analogous and the rights in question are the same as those in this
 16 proceeding, and the rate was recently re-negotiated in the shadow of the 801(b) factors, at
 17 least as applicable to the PSS. Another benchmark is the collection of rates paid by XM
 18 and Sirius for musical composition performance rights. The advantage of this benchmark
 19 is that the services are those in this proceeding (and so perfectly analogous) and the rights
 20 are for the use of inputs comparable to the SRPR.

21 While both benchmarks have their appeal, neither is perfectly analogous in all
 22 respects. In the next sections, I describe the relevant differences and suggest
 23 modifications to these candidate benchmark rates to account for the differences. I discuss
 24 each benchmark in turn.

25 **V Appropriately Adjusted, the SRPR Rate Paid by the PSS** 26 **is a Useful Benchmark Rate**

27 a. ***XM and Sirius offer services generally analogous to those offered by the***
 28 ***PSS***

29 Like XM and Sirius, the PSS provide a subscription music service for use by
 30 consumers. They all offer digital quality sound, and most of their music channels are

1 commercial-free. The PSS, XM, and Sirius each offer a large number of musical genres
2 and a large number of music channels within each genre. Exhibit 6 presents the number
3 of music channels provided by each of XM, Sirius, and Music Choice (which I treat as a
4 typical PSS), by genre.²¹ XM and Sirius offer more music channels than does Music
5 Choice. XM has a total of 80 music channels, 69 of which are commercial-free.²² By
6 comparison, Sirius has 71 music channels, 66 of which are commercial-free, and Music
7 Choice has 58 music channels, all of which are commercial-free. I understand, however,
8 that the number of Music Choice channels received by most cable subscribers is much
9 lower than that. For example, I understand that the number of Music Choice channels
10 offered as part of Comcast cable packages ranges from 40 to 47.

11 The PSS are currently paying a SRPR rate of 7.25%, a rate that I understand was
12 based on an agreement between Music Choice and SoundExchange, the organization
13 representing the holders of the SRPR in this proceeding.²³ In particular, I understand that
14 in 2003, Music Choice agreed to pay SoundExchange 7% of its gross revenues in 2002
15 and 2003 and 7.25% in 2004 through 2007. I understand that this negotiated rate was the
16 first rate change for a pre-existing service following the proceeding that established the
17 initial rate of 6.5% in 1998.²⁴

18 In addition to being an outcome of an agreement, a key advantage of the PSS
19 7.25% rate as a benchmark rate is that the Music Choice/SoundExchange negotiations
20 took place in the shadow of a rate-setting proceeding to which either of the parties could
21 have resorted in the event of a negotiation failure. Because any rate setting proceeding
22 would have been based upon the 801(b) statutory factors, the negotiated rate presumably
23 reflects those factors as well.

²¹ To create this comparison of channels by genre, I assigned Sirius and XM channel groupings (as presented in Exhibits 3 and 4) to the Music Choice defined genres. In doing so, I relied upon channel descriptions available on the XM and Sirius websites.

²² Recall that I define “music channels” to include all channels that use commercially released sound recordings.

²³ I understand that a number of record labels have a significant ownership interest in Music Choice. I am assuming for purposes of this discussion that the financial interests of the other non-label owners of Music Choice will ensure that any negotiated rate between Music Choice and SoundExchange is one that is arms-length.

²⁴ See Library of Congress, Copyright Office 37 CFR Part 260, Docket No. 2001-1 CARP DSTRA2, Determination of Reasonable Rates and Terms for the Digital Performance of Sound Recordings by Preexisting Subscription Services, *Federal Register*, Volume 68, No 128, July 3, 2003 at 39840.

1 Still, for at least three reasons, the PSS rate needs to be tailored to the XM and
2 Sirius services before it can be applied to XM and Sirius. First, the PSS offer only music
3 audio services without any embellishment. In contrast, XM and Sirius offer substantial
4 non-music programming to their subscribers, including that on the music channels. As I
5 discuss in greater detail below, the services have made investments in acquiring exclusive
6 talent (such as Howard Stern and Oprah) for non-music channels. And on their music
7 channels, both services have hired programmers with substantial and acknowledged
8 expertise in particular musical genres. In addition, both services employ experienced on-
9 air talent for their music services, including experienced music programmers and well-
10 known artists.

11 Second, XM and Sirius provide an end-to-end service with a national footprint
12 directly to subscribers and incur all of the costs of providing the end-to-end service. As
13 noted above, these costs included the design, building, and launch of the satellite system
14 capable of providing a mobile service, the design and development of the radios, and all
15 of the marketing associated with attracting and retaining individual subscribers to the
16 service as well as the billing and collections costs, all required for a direct-to-the-
17 consumer business. By contrast, the PSS provide a service that it hands off to a cable
18 operator. The cable operator then incurs the costs of distributing the service to cable
19 subscribers, the costs of billing, and the costs of fee collection.

20 Third, the XM and Sirius services are not only end-to-end services, they are end-
21 to-end mobile services with a national footprint—the subscriber can listen to the services
22 in a vehicle, at home, or (depending on the radio) while walking about. The PSS services
23 are available only for in-home listening.

24 All of the above-referenced differences between XM/Sirius on the one hand and
25 the PSS on the other require adjustments to the 7.25% SRPR fee paid by the PSS before it
26 can be applied to the revenues of XM and Sirius.²⁵ In addition (but discussed separately
27 below), the application of the statutory factors in the XM and Sirius rate determination
28 may be different from that encompassed in the PSS rate.

²⁵ While my discussion focuses on modifying the PSS rate that will be applied to the Sirius and XM revenues, I could have equivalently modified the revenues of XM and Sirius to account for the described differences, and then applied the PSS rate to the adjusted XM and Sirius revenues.

1 b. *Use of the 7.25% PSS rate*

2 I understand that the SRPR rate paid by the PSS services will be determined as
3 part of this proceeding and the PSS may be recommending a downward adjustment to
4 that rate. Thus, my use of the 7.25% rate may be misplaced. In particular, the same
5 methodology adopted by the CARP and the Librarian in setting the prior 6.5% rate could
6 today yield a lower rate for the PSS.

7 The original PSS rate of 6.5% of gross revenues for the use of the SRPR by pre-
8 existing services appears to have been based on the DMX/Music Choice – ASCAP rate
9 that was being adjudicated at the time.²⁶ Recognizing that this benchmark rate itself was
10 being decided and that the ultimate ASCAP rate paid by DMX/Music Choice would not
11 be as low as the then interim rates, both the Librarian and the CARP based the SRPR rate
12 on “an upper limit on the value of the performance right for the musical compositions.”²⁷
13 The numerical range used by the CARP has been redacted from the public versions of the
14 Librarian’s and CARP’s decisions. However, based upon the discussion by the Librarian,
15 it is reasonable to assume (at least in principle) that the upper bound would reflect an
16 offer from ASCAP to the PSS.

17 In the Music Choice – BMI proceeding, which was taking place
18 contemporaneously, BMI offered Music Choice a rate of 3.75%.²⁸ To the extent that this
19 offer was similar to the offer made by ASCAP to Music Choice, the rate of 3.75% may
20 reflect the “upper limit” of the Librarian’s and the CARP’s original range. I understand
21 that ultimately, however, Music Choice and BMI reached agreement on a 2.75% rate for
22 past payments (and 2.5% for payments going forward). Had the CARP and the Librarian
23 known of the ultimate 2.75% rate, they would have likely started with a lower rate at the
24 top end of the range and then adjusted that rate downwards upon applying the logic of the
25 801(b) factors.

26 To see this, if the upper bound in the original pre-existing PSS proceeding was
27 based on a 3.75% rate and if SESAC payments amounted to 6% of the ASCAP and BMI

²⁶ Librarian Decision 1998 at 25404, 25414.

²⁷ Librarian Decision 1998 at 25403.

²⁸ *United States v. Broad. Music, Inc.*, No. 64 Civ. 3787 (LLS), 2001 U.S. Dist. LEXIS 10368 (S.D.N.Y. July 23, 2001) at pp. 5-6.

1 payments, then the sum of PRO rates would be 7.95% (i.e., $2 \times 3.75\% \times 1.06$).²⁹ After
 2 accounting for the 801(b) factors, the actual rate was set at 6.5% by the Librarian. This
 3 suggests that the 801(b) factors had the effect of setting the SRPR rate 18.2% below the
 4 upper bound. The subsequently negotiated PSS rate of 7.25% then represented an
 5 increase of 11.5% over the 6.5% rate.

6 However, I understand that today the now-finalized BMI rate is not 3.75% but
 7 2.75%. If the Librarian followed the same logic as in the original PSS proceeding, the
 8 upper bound for that rate would have been 5.83% (i.e. $2 \times 2.75 \times 1.06$). Accounting for
 9 the effect of the 801(b) factors would have resulted in a rate of 4.77% (i.e., 5.83% times
 10 the (100%-18.2%). The subsequent rate increase of 11.5% would have resulted in a
 11 current PSS rate of 5.32%, not 7.25%.

12 While my discussion of the PSS benchmark focuses on the 7.25% rate, I note
 13 what the implications would be if the 5.32% rate were used instead. More generally, the
 14 methodology described below can be used to derive a rate for the XM and Sirius services
 15 even if the CRB were to determine a PSS rate different from the 7.25% rate or the 5.32%
 16 rate. That derivation would be a calculation that simply replaces the 5.32% rate with the
 17 CRB-determined rate, absent any other mitigating factors.

18 c. *Some revenues earned by XM and Sirius are attributable to non-music*
 19 *services and need to be accounted for in setting the SRPR rate*

20 A key difference between XM and Sirius on the one hand and the PSS on the
 21 other is in the broader suite of channels offered by XM and Sirius. Music Choice and the
 22 other PSS offer no non-music audio services. By contrast, Sirius offers its subscribers 56
 23 non-music channels and XM as many as 93 non-music channels, in addition to their
 24 music channel offerings.³⁰ (See Exhibit 7.) Indeed, non-music programming has become
 25 an increasingly central element of the Sirius and XM services. In 2001, the year its
 26 service was launched, XM offered non-music programming on 27% of its channels (27
 27 out of 101). By 2005, non-music channels had increased to 46% of channels (61 out of

²⁹ I understand that historically, XM and Sirius payments to SESAC for their subscription radio service have equaled about [] of their combined payments to ASCAP and BMI.

³⁰ A large portion of XM's non-music channels consist of play-by-play sports channels that subscribers receive as part of the Sports Package. For example, there are 15 major league baseball play-by-play channels and 5 NHL hockey channels.

1 133), while the number of music channels had actually decreased slightly.³¹ For Sirius,
2 the percentage of non-music channels has grown from 39% (39 out of 101) in 2002, the
3 first year of operation, to 44% (59 out of 133) last year.³² (See Exhibits 8.a and 8.b.)

4 But simple channel counts understate the significance of non-music programming
5 in the efforts of the two services to attract and retain subscribers. Both services have
6 made substantial investments in original, exclusive and non-exclusive brand-name non-
7 music content. These investments are intended to attract subscribers to Sirius' and XM's
8 subscription radio services and to distinguish the one service from the other and from
9 other competing services like Music Choice and over-the-air radio.³³ Sirius has signed
10 exclusive contracts with individual celebrities, such as Howard Stern, Martha Stewart,
11 Jerry Rice, Barbara Walters, and Deepak Chopra, as well as with the National Football
12 League, the National Basketball Association, the National Collegiate Athletic
13 Association's Mens Division I Basketball Championship, and Wimbledon – where these
14 exclusives are relative to XM.³⁴

15 Similarly, XM has signed exclusive contracts with celebrities such as Oprah, Opie
16 and Anthony, Bob Dylan, Ellen Degeneres, and Bob Edwards, as well as with Major
17 League Baseball and NASCAR.³⁵ Indeed, MLB is carried on 16 XM channels during
18 the baseball season.³⁶ In addition, XM and Sirius have non-exclusive content deals that
19 include: ABC News and Talk; BBC World Service News; Bloomberg News; CNBC;
20 CNN; C-Span; E! Entertainment; ESPN; ESPNEWS; Fox News; Radio Disney; and The
21 Weather Channel, among others.³⁷ All of these services represent well-known consumer
22 brands and represent an investment by the two services in accumulating their own brand
23 equity.

24 This growth in the role of non-music programming has been accompanied by
25 substantial expenditures on those programs. For example, based on the contractual

³¹ In these counts, multiple play-by-play channels are counted as a single channel.

³² Information on historical channel lineups from 2001-2005 is taken from XM and Sirius Form 10-Ks.

³³ "Satellite Radio Outlook," *op. cit.*, p. 63.

³⁴ 2005 Form 10-K, Sirius Satellite Radio Inc., p. 5; "Sirius Reports Strong Second Quarter 2006 Results," August 1, 2006, at <http://investor.sirius.com/releaseprint.cfm?releaseid=205864>

³⁵ 2005 Form 10-K, XM Satellite Radio Holdings Inc., p. 1-2. NASCAR will move to Sirius starting in 2007. See 2005 Form 10-K, Sirius Satellite Radio Inc., p. 4.

³⁶ 2005 Form 10-K, XM Satellite Radio Holdings Inc., p. 8.

³⁷ "Satellite Radio Outlook," *op. cit.*, p. 63.

1 they add 145,000 subscribers over the three-year period. That should be very easy for
 2 them to do."⁴⁶ Regarding the Howard Stern deal, *Business Week* wrote, "It can't be
 3 denied: Howard Stern is earning his keep at Sirius Satellite Radio ("SIRI"). Since the
 4 talk-radio star announced he would join Sirius, its subscriber rolls have jumped to more
 5 than 4 million, with more than 1 million net additions attributable to Stern, analysts
 6 say."⁴⁷

7 Advertising revenues provide an additional measure of the increasing role of non-
 8 music programming. These revenues are driven by non-music channels since the music
 9 channels are predominantly commercial-free. The advertising revenues of both Sirius
 10 and XM are now beginning to reflect that importance. In 2005, the advertising revenues
 11 of XM were [[]] while those of Sirius were [[]]. In just the first
 12 half of 2006, following the launch of the Stern programming, I understand that Sirius' ad
 13 revenues totaled [[]]. By contrast, both services had relatively trivial
 14 advertising revenues in the first year of operation.⁴⁸

15 The platform for advertising growth is comprised in large part of the talent and
 16 other non-music programming that has been acquired by the two services. For example, I
 17 noted above the expectations regarding the effect of Howard Stern's exclusive
 18 relationship with Sirius on increasing Sirius' subscribership. The same is true for the
 19 subscriber effect of XM's exclusive relationship with Oprah. These and other
 20 programming investments discussed above are expected to generate greater listenership
 21 in the future, to these particular services as well as to other ad-supported services.

22 As a final measure of the significance of non-music programming to satellite
 23 radio revenues, survey results suggest that talk and other non-music channels
 24 disproportionately drive subscriber decisions. In a 2006 survey, Sirius listeners were

⁴⁶ Quoted at <http://www.orbitcast.com/archives/oprah-joins-xm-satellite-radio.html>, visited on 8/29/06.

⁴⁷ "Stern Is the Draw At Sirius Satellite Radio", *Business Week*, April 10, 2006, p. 104. See also "Is Howard Stern Worth It?", *Business Week*, January 23, 2006, p. 38; "Can Stern Make Satellite Radio Hum?", *CNNMONEY.com*, December 21, 2005.

⁴⁸ See 2003 and 2005 Form 10-K, XM Satellite Radio Holdings Inc.; 2003 and 2005 Form 10-K, Sirius Satellite Radio Inc. Note that Kagan Research forecasts that Sirius' ad revenues will continue to grow as a fraction of total revenues, reaching 11.5% in 2014 versus 2.5% in 2005 (*Satellite Radio Outlook*, Kagan Research, LLC, July 2005, p. 74.)

1 asked which channels they had listened to in the past week.⁴⁹ For each channel they had
 2 listened to, they were then asked whether they would cancel their subscription if that
 3 channel were no longer offered.

4 Using these data, I created a “channel-attachment” index to measure the
 5 cancellation responses for music relative to non-music programming. Specifically, for
 6 each Sirius channel, I multiplied the fraction of the surveyed Sirius subscribers listening
 7 to the channel in the last week by the fraction of those subscribers who indicated that they
 8 would cancel their service if the channel were deleted from the Sirius lineup. This
 9 calculation produces a weighted cancellation rate, where the weight is the fraction of
 10 surveyed subscribers listening to the channel. I then sum these weighted cancellation
 11 rates over all channels and calculate the fraction of that sum accounted for by music and
 12 non-music channels.

13 For example, suppose that 20% of Sirius subscribers listened to a particular music
 14 channel in the past week and 20% of those indicated that they would cancel the Sirius
 15 service if the channel were withdrawn from the Sirius lineup. Further suppose that 40%
 16 of Sirius subscribers listened to a particular non-music channel in the previous week and
 17 50% of those indicated that they would cancel the Sirius service if Sirius stopped offering
 18 that channel. The weighted cancellation rate for the music service is 0.04 (i.e. 0.2×0.2),
 19 and the weighted cancellation rate for the non-music service is 0.2 (i.e. 0.5×0.4). The
 20 sum of the weighted cancellation rates in this example is 0.24, and 83% of these total
 21 0.24 “points” are accounted for by the non-music channel.

22 Overall, [[]] of the channels listened to during the survey period were music
 23 channels.⁵⁰ However, music channels accounted for only [[]] of total weighted
 24 cancellation rates. (See Exhibit 10.) Non-music channels accounted for the remainder.⁵¹
 25 This suggests that listenership may overstate the significance of music channels to
 26 subscribers. This does not seem particularly surprising, as suggested by the apparently

⁴⁹ *Sirius Satellite Radio Listener Study – Wave 2*, June 2006, pp. 37-61. The number of useable responses was 24,339.

⁵⁰ This survey only asks about which channels were listened to and not how much time was spent listening to each channel.

⁵¹ If the Howard Stern channels are excluded, [[]] of the channels listened to were music channels, but music still accounted for less [[]] of the total weighted cancellation rates than would be suggested by the listenership data.

1 substantial advertising efforts undertaken by the two services to promote (e.g.) Howard
2 Stern and Oprah.

3 In short, the benchmark PSS SRPR rate must be adjusted to reflect the
4 significance of non-music programming in generating the revenues of XM and Sirius,
5 before it can be applied to the XM and Sirius revenues. Note that this package of non-
6 music programming benefits SRPR holders: it attracts more subscribers than would
7 otherwise be the case and diverts their music listening from over-the-air radio that pays
8 no SRPR fee to XM and Sirius that do pay that fee. Indeed, another survey conducted by
9 Sirius indicates that after subscribing to Sirius, in-vehicle listenership to AM and FM
10 stations dropped from [[]] of the time spend in the vehicle to [[]]. (See Exhibit
11 11.)

12 d. ***Some revenues incurred by XM and Sirius are due to enhanced music***
13 ***programming***

14 The music channels of Music Choice and the other PSS contain jukebox-style
15 music programming. That is, they offer continuous music generated primarily by
16 computer-generated playlists. By contrast, XM and Sirius use a variety of talent,
17 including experienced music programmers with genre-specific expertise, to program most
18 of their various music channels in order to make those channels more attractive to
19 subscribers. In particular, I understand that both XM and Sirius have hired program
20 directors that have extensive experience in each genre of focus. For example, XM has
21 hired Robert Aubrey Davis and Martin Goldsmith to oversee the XM classical music
22 offerings. Similarly, Sirius has contracted with classic rocker Little Stevie Van Zandt to
23 program its Underground Garage music channel offering a variety of alternative rock
24 music.

25 In addition, both services offer individual artists the opportunity to lead specific
26 programs in their lineup. For example, Bob Dylan hosts a weekly XM show where he
27 reminisces and chooses what music to play and what kind of theme to offer listeners.
28 Similarly, Tom Petty is host of a weekly XM show playing classic rock and roll.
29 Eminem created the channel Shade 45 on Sirius, which is dedicated to uncensored hip-
30 hop music, and Shooter Jennings hosts his own show on Sirius' Outlaw Country channel.

1 Both services also host live performances and other programs to highlight
 2 individual performers. Sirius' *The Who* channel plays a full recent concert recording by
 3 The Who every night, and every concert on Jimmy Buffett's "Party at the End of the
 4 World Tour" will air live on Sirius' *Radio Margaritaville*. On XM,
 5 "Then...Again...Live" offers classic rock artists the chance to perform their music again,
 6 likely exposing some listeners to performers of whom they might otherwise not have
 7 been aware. XM has also broadcast live from various musical events. For example, in
 8 2005, I understand that the service carried more than 55 hours of Live 8 performances
 9 held in London, Paris, Rome, Berlin, Philadelphia, and Toronto.

10 Like non-music programming, enhanced music programming generates
 11 subscribership for XM and Sirius over and above that for a plain-vanilla music-only
 12 service. Enhanced music programming also provides benefits to SRPR holders to the
 13 extent that it results in more listening to music, diverting listeners from terrestrial radio
 14 that does not pay a SRPR fee to a service that does.

15 e. ***XM and Sirius incur higher costs than Music Choice because they***
 16 ***provide a mobile service delivered directly to ultimate subscribers***

17 I understand that services like Music Choice and other PSS use their own
 18 facilities and personnel to program and store the music for various music channels. The
 19 PSS then "uplink" (or transmit) the music channels to a conventional for-lease satellite.
 20 The signal is then "handed off" to a purchasing cable operator who receives the signal via
 21 its own earth stations at its head-end. The cable operator pays a fee to the "hand-off"
 22 provider for its service that reflects the value of the audio music service to the cable
 23 operator's subscribers and then distributes the music service via its cable infrastructure to
 24 the homes of its subscribers. The cable operator is also responsible for attracting and
 25 retaining the subscriber, billing the subscriber, and collecting the subscriber payments, a
 26 portion of which are effectively used to offset the cable operator's payment to the music
 27 service provider.⁵² Thus, the hand-off provider incurs the costs to the point of hand-off,

⁵² Both XM and Sirius (and, at one point, Music Choice) also sell their service to the direct broadcast satellites, DirecTV and Dish. The discussion in the text focusing on the "hand-off" to cable operators is for ease of exposition only. My focus here is on the core business of XM and Sirius—the provision of a direct-to-subscriber mobile audio service.

1 and the cable operator incurs the remainder of the costs as well as the cost of the hand-off
2 service itself. A simplified version of this kind of two-part distribution system is
3 depicted in Exhibit 12.

4 Like a hand-off provider, XM and Sirius create a programming package that is
5 uplinked to a satellite system, and as such, incur the same general categories of costs as
6 does a hand-off provider. These costs include the uplink costs as well as the costs of
7 compiling the programming package. For convenience, I refer to these costs as “hand-
8 off provider costs.”

9 But unlike the hand-off provider (or the PSS), the core business of XM and Sirius
10 is to provide an end-to-end, mobile service directly to subscribers. Accordingly, XM and
11 Sirius also incur substantial additional costs, on top of the hand-off provider costs. These
12 costs include the cost of distribution, including the design, building, and launch of a
13 customized satellite system to provide a mobile service as well as the radios that receive
14 and decode the XM and Sirius transmissions; the cost of marketing the services directly
15 to subscribers; the cost of subscriber acquisition and retention; as well as the cost of
16 billing and collection of fees from their subscribers. For convenience, I describe all of
17 these additional costs borne by an end-to-end, mobile service provider as “subscriber
18 distribution and acquisition costs.”

19 In sum, XM and Sirius incur subscriber distribution and acquisition costs not
20 incurred by a hand-off provider to deliver their programming to final subscribers. Those
21 greater costs are driven by both the mobile characteristic of the XM and Sirius service
22 and the accompanying added cost responsibility borne by XM and Sirius for delivering
23 the service directly to consumers (costs that are borne by the cable operator in the case of
24 the PSS).⁵³ As with the need to adjust the PSS rate to account for the non-music channels
25 provided by XM and Sirius, that rate must be adjusted to reflect these greater costs
26 incurred by XM and Sirius for the mobility characteristic and for the end-to-end cost
27 responsibility before the PSS rate can be applied to the revenues of the two services. If

⁵³ To be sure, many XM and Sirius listeners who have portable radios listen to the services at home as well as in a vehicle. But I understand that only a small fraction of listening is solely within the home. For example, a survey conducted by Sirius reports that only 6% of its subscribers listen to the service only in non-vehicle locations. *Sirius Customer Satisfaction Monitor 2Q '06 Results*, August 28, 2006, p. 20. The total number of respondents was [[]].

1 the 7.25% rate were applied to the XM and Sirius revenues without adjustment, the
 2 payments to SoundExchange would be excessive—even if the music offerings of XM and
 3 Sirius were identical to those of the PSS. The SRPR fee paid by XM and Sirius would be
 4 higher only because of the added revenue (reflecting the higher costs) attributable to
 5 providing an end-to-end mobile service, not necessarily because of any inherently higher
 6 value of the music.⁵⁴

7 In what follows, I describe the kinds of adjustments that would account for these
 8 differences in costs and in the subsequent section, I implement those adjustments.

9 **VI The Conceptual Framework for Accounting for the** 10 **Functional Differences between XM and Sirius and a** 11 **Hand-Off Provider**

12 To explain the practical importance of the functional differences between XM and
 13 Sirius and a hand-off provider in calculating an appropriate SRPR fee, I provide a simple
 14 example. Suppose a hand-off provider offers an audio music-only service like the PSS,
 15 hands off its service to a cable operator for in-home listening, and earns \$1000 from the
 16 cable operator. Suppose as well that that service must pay 7.25% of its revenues for the
 17 use of the SRPR, and so pays \$72.50 to SoundExchange (i.e., 7.25% of \$1000).

18 Now suppose the cable operator charges its cable subscribers that \$1000 plus
 19 another \$2000 to recoup the costs for final distribution, marketing, billing, and fee
 20 collection, for total subscriber payments of \$3000. Thus, the total payments made by
 21 cable subscribers for the music service recoup not just the costs of the hand-off provider
 22 service alone, but also the costs of delivering that music to ultimate subscribers. If
 23 instead the hand-off provider paid the cable operator for the use of its infrastructure and
 24 performed the billing and fee collection services itself at a cost of \$2000, the hand-off
 25 provider would charge its subscribers a total of \$3000.

26 Since the ultimate service that subscribers purchase is, by assumption, exactly the
 27 same in both cases, the SRPR fee should be the same in both cases, \$72.50. If the rate for
 28 the SRPR were to be levied on the hand-off provider's total revenues (because the hand-
 29 off provider now provides an end-to-end service), the appropriate rate would be 2.42%,

⁵⁴ Of course, to the extent that mobility results in more music listening, SRPR holders will directly benefit, even with the adjustments described below.

1 which, when applied to revenues of \$3000, would also yield \$72.50 for the use of the
2 SRPR. In this example, the only, but key, difference between the two scenarios is
3 whether the hand-off provider or the cable operator is responsible for final distribution,
4 marketing, billing, and fee collection, leading to a difference in the revenues against
5 which the rate is assessed.⁵⁵

6 That key difference provides yet another way of reaching the same result. That is,
7 we could have adjusted the 7.25% rate to account for the relative difference in the cost of
8 providing the hand-off provider service and the end-to-end service. It is that cost
9 difference that drives the revenue difference in the two scenarios. The appropriate rate to
10 be levied on the end-to-end version of the service would be 7.25% times ($\$1000/\3000),
11 or 2.42%.

12 This example suggests one way of accounting for the fact that XM and Sirius
13 offer subscribers an end-to-end service and not a hand-off provider service: Determine
14 the dollar payment that would be made by XM and Sirius for the SRPR if they offered
15 only a hand-off provider service. In principle, this could be done by applying the 7.25%
16 rate to the revenues earned by XM and Sirius if they provided a hand-off provider
17 service. To then calculate the SRPR rate that would be applied to the end-to-end
18 revenues of XM and Sirius, I would divide the dollar payment made to SoundExchange
19 for the hand-off provider service of XM and Sirius by the end-to-end revenues of XM
20 and Sirius, just as in the example above.

21 Of course, I do not know directly what the hand-off provider revenues of XM and
22 Sirius would be since they do not offer that more limited service as a core business.
23 However, one way to meter revenues, as suggested above, is through costs. The relative
24 revenues earned by a hand-off provider service hypothetically provided by XM and Sirius
25 and by the end-to-end services actually provided by XM and Sirius would reflect the
26 relative costs of the two types of services. Thus, if I could estimate what a hand-off

⁵⁵ Suppose the hand-off provider had always provided the end-to-end service and the SRPR rate had been levied on the end-to-end revenues of the (now misnamed) hand-off provider to begin with, i.e., the original SRPR rate was 2.42%. If this provider now decided to hand off its service to the cable operator, letting the cable operator incur the final distribution costs, marketing costs, and the costs of billing and collection, the firm's revenues would be \$1000. It would not be any more appropriate to apply the 2.42% to the new revenues of \$1000 than it would be to apply the 7.25% to the revenues of \$3000. The music delivered is exactly the same, so the payment for the SRPR should be the same (i.e., \$72.50). Thus the "new" SRPR rate would have to be adjusted upwards from 2.42% to 7.25%.

1 provider service would cost XM and Sirius and if I knew the costs of the end-to-end
2 service, I could use that information to adjust the 7.25% rate so as to apply the adjusted
3 rate to the end-to-end revenues of XM and Sirius.

4 Any translation of the 7.25% rate to one that could be levied on the end-to-end
5 revenues of XM and Sirius must also reflect other key differences between the XM and
6 Sirius service and the PSS service above and beyond the end-to-end nature of the XM
7 and Sirius services. XM and Sirius have incurred considerable costs to develop and
8 deploy a mobile service as well as to provide substantial non-music components to the
9 audio package provided. Applying the PSS rate to Sirius and XM revenues when both of
10 these services provide significant attributes unavailable on a PSS would overstate the
11 payment due to SoundExchange. That is, it is not the music that drives the higher per-
12 subscriber revenues earned by XM and Sirius. Rather, it is in large part the mobility
13 characteristic, along with the non-music offerings and the enhancements to the music
14 offerings of XM and Sirius, that drives those revenues. That conclusion is consistent
15 with the inability of Music Choice, DMX, and Muzak to financially sustain a standalone
16 in-home, music-only premium cable service. Apparently, not enough consumers valued
17 an à la carte audio service consisting of multiple channels of continuous music streams in
18 the home to render an à la carte service profitable. The difference between XM and
19 Sirius on the one hand and the PSS on the other is the mobility of the service (along with
20 the non-music programming, and the music enhancements offered by the satellite radio
21 services).

22 To develop a way of estimating the costs of a more limited hand-off provider
23 service offered by XM and Sirius, consider the following thought experiment. Suppose it
24 were possible to divide XM and Sirius into two parts. One part would be the functional
25 equivalent of a hand-off provider, compiling the audio programming and uplinking the
26 programming to third parties (which would be the “other” part of XM and Sirius) using
27 conventional satellite technology. The third parties would then be responsible for
28 injecting the service with the mobility characteristic and for the ultimate distribution to
29 the consumer (including advertising, promotion, the sale of radios, customer service, and
30 billing). And the third parties would have the customer relationship. If I knew the costs
31 of the hand-off provider service of XM and Sirius, I could then calculate what fraction of

1 the costs of the end-to-end mobile service actually incurred by XM and Sirius was
2 accounted for by the hand-off provider service of XM and Sirius (including the SRPR
3 payment that would be made by levying the 7.25% rate on the hand-off provider revenues
4 for XM and Sirius). Just as in the example above, that fraction could be used to translate
5 the 7.25% rate into a rate that could be applied directly to the end-to-end revenues of XM
6 and Sirius. This functional adjustment to the 7.25% rate for XM and Sirius would then
7 account for the mobile as well as the end-to-end component of the XM and Sirius service,
8 and would be the equivalent of the PSS rate in terms of the fees that it would generate for
9 SoundExchange (because the lower rate is applied to greater revenues) for a hand-off
10 provider service provided by XM and Sirius. (Of course, I also need to consider
11 programming adjustments to that rate, as discussed later.)

12 **VII Accounting for the Functional Differences between XM** 13 **and Sirius and a Hand-Off Provider Service**

14 The framework developed in the previous section suggests a mechanism for
15 translating the 7.25% rate into one that can be levied on end-to-end revenues of XM and
16 Sirius. I would expect that the higher revenues earned on the end-to-end mobile service
17 relative to the hypothetical hand-off provider service will reflect the higher costs of the
18 end-to-end mobile service relative to the hand-off provider service. This is a matter of
19 simple economics: Higher costs require that the firm generate higher revenues if it is to
20 remain financially viable.

21 One translation mechanism is to adjust the PSS rate to account for the relative
22 difference between costs that would be incurred by Sirius and XM if they offered their
23 core business service as only a hand-off provider and their actual end-to-end costs.⁵⁶
24 That translation of the 7.25% rate could then be levied on the end-to-end revenues of XM
25 and Sirius because that rate would then have accounted for the higher costs on the end-to-
26 end mobile service relative to their hand-off provider service. The translation would
27 result in XM and Sirius paying SoundExchange the same dollar amount it would have
28 been paid if XM and Sirius offered only the hand-off provider service in the same
29 functional manner as Music Choice, DMX, or Muzak.

⁵⁶ As noted previously, I account for the non-music programming of XM and Sirius below.

1 The first step in the translation process is to generate a functional adjustment to
2 the 7.25% PSS rate that will account for the mobility characteristic of the XM and Sirius
3 service as well as for other end-to-end services provided by the two companies. This
4 functional adjustment requires an estimate of which of the end-to-end costs incurred by
5 XM and Sirius would fall into the hand-off provider category. Of course, an important
6 question is what the “hand-off provider” service would be for XM and Sirius. I define
7 the hand-off provider to include the entire audio package (both music and non-music
8 programming) offered by Sirius and XM, because it is that package that would generate
9 the demand for the service by third parties in turn that would reflect ultimate demand for
10 the XM and Sirius services by consumers, not just the music component of the package.⁵⁷
11 The subscriber distribution and acquisition costs that would be incurred by the third-party
12 distributors (i.e., the “other” part of XM and Sirius) would include the additional end-to-
13 end costs as well as the costs of injecting the XM and Sirius services with the mobility
14 characteristic.

15 a. *Cost assignment for XM*

16 My decomposition of costs between hand-off provider costs and subscriber
17 distribution and acquisition costs begins with an analysis of XM’s costs, by line item.
18 Exhibit 13 details a set of cost line items provided by XM, averaged over the fiscal years
19 2005 and the first two quarters of 2006. Because unanticipated costs can vary from year
20 to year, I use average costs over this period. The Appendix describes the XM line items
21 in Exhibit 13 and the reasons for categorizing them as either hand-off provider costs or
22 subscriber distribution and acquisition costs.

23 Some cost line items, even at a detailed level, cannot be categorized as a hand-off
24 provider cost or as a subscriber distribution and acquisition cost. In such cases, I allocate
25 that cost line item according to the ratio of hand-off provider costs to end-to-end costs for
26 the other assignable cost line items.⁵⁸ Additionally, I exclude certain cost line items

⁵⁷ Of course, as I have noted a number of times, I must still account for the differences in the programming offered by XM and Sirius and that of the PSS.

⁵⁸ I have allocated some of the cost components that could not be directly assigned to the hand-off provider or to the subscriber distribution and acquisition cost category because it did not seem reasonable to assign all of the, for example, G&A expenditures to either the hand-off provider or to the subscriber distribution and acquisition level. Against that background, allocation of these unassigned costs to the hand-off

1 which are not relevant to this calculation (for example, XM's share of the earnings or
 2 losses of its Canadian affiliate). Exhibit 13 reports each of the "baseline" line items
 3 provided to me by XM and how those items were assigned to the hand-off provider or
 4 subscriber distribution and acquisition category, as well as indicating which line items
 5 were allocated between the two cost categories.

6 b. *Cost assignment for Sirius*

7 I repeat this categorization of baseline cost data as hand-off provider or subscriber
 8 distribution and acquisition costs for Sirius in Exhibit 14, with the detailed line items
 9 described in the Appendix. Like XM, Sirius provided data for fiscal year 2005 and the
 10 first half of fiscal year 2006. However, a key cost component for Sirius programming—
 11 the Howard Stern deal—is not reflected in the 2005 data. To ensure that going forward
 12 the Stern costs were appropriately counted, I assigned the 2006 Stern costs to 2005 as
 13 well. As with XM, costs that could not be obviously assigned to the hand-off provider or
 14 subscriber distribution and acquisition category were allocated to the hand-off provider
 15 category by the ratio of assignable hand-off provider costs to end-to-end costs.

16 c. *Imputing the payment for the use of SRPR*

17 The second step in estimating the cost ratio is to impute what the payments to
 18 SoundExchange would be based upon the fraction of total Sirius and XM costs that are
 19 accounted for by the hand-off provider costs.⁵⁹ Based on the current end-to-end revenues
 20 of XM and Sirius, I use the ratio of the hand-off provider costs to end-to-end costs to
 21 estimate what the hand-off provider revenues of XM and Sirius would be. This assumes
 22 that the relative difference between the revenues of providing the hand-off provider
 23 service and the end-to-end service reflects the relative difference in costs between the
 24 hand-off provider service and the end-to-end service (both cost components including the

provider level by the ratio of the assignable hand-off provider costs to the end-to-end costs seemed reasonable.

⁵⁹ Of course, these estimated payments will be excessive because (e.g.) the calculations do not account for the distinction between music and non-music services, a distinction we address in the next section, or the application of the 801(b) factors.

1 SRPR fee itself).⁶⁰ I then use the PSS rate of 7.25% to determine what the payments to
 2 SoundExchange would be based upon hand-off provider revenues for XM and Sirius, and
 3 incorporate those payments as part of both the hand-off provider and end-to-end costs.

4 The assumption that the hand-off provider revenues relative to the end-to-end
 5 revenues directly reflects the hand-off provider costs relative to the end-to-end costs is
 6 reasonable. In competitive markets, revenues tend to be driven to costs and the services
 7 offered by XM and Sirius (at both the hand-off provider level and the end-to-end level)
 8 are competitive, as I discuss in greater detail below. But for my purposes here, revenues
 9 do not have to be equal to costs or approximately so for my analysis to be valid: All that
 10 is necessary is that the revenues at both the hand-off provider and the end-to-end levels
 11 be in the same proportion to costs. Below, I address factors that support my conclusion
 12 that deviations from equality do not seem to be a significant issue in the sense that such
 13 deviations would lead to a systematic underestimate of the applicable SRPR rate.

14 d. *Calculating the PSS rate using the functional adjustment*

15 I now have the data to apply a functional adjustment to the PSS SRPR rate, i.e., an
 16 adjustment to account for the fact that, unlike the PSS, XM and Sirius provide a
 17 nationwide mobile end-to-end service. To determine the SRPR rate that would be
 18 applied to the end-to-end revenues of XM and Sirius to account for this functional
 19 difference, I multiplied the 7.25% rate by the ratio of hand-off provider costs to end-to-
 20 end costs.⁶¹ Using the baseline data and allocations in Exhibits 13 and 14 for XM and
 21 Sirius, respectively, that ratio for XM is about [[]] and for Sirius, that ratio is about
 22 [[]]. That exercise results in a functionally-adjusted rate of [[]] for XM and
 23 [[]] for Sirius, i.e., one that is now consistent with the end-to-end service provided

⁶⁰ To be precise, I assumed that $(R_{\text{hand-off provider}}/R_{\text{ee}}) = (C_{\text{hand-off provider}}/C_{\text{ee}})$ where “ee” refers to the end-to-end service, R refers to revenues, and C refers to costs. In the baseline case being developed here, XM’s estimated payments to SoundExchange are equal to the 7.25% PSS rate applied to the ratio of hand-off provider costs to end-to-end costs, multiplied by XM’s actual revenue. The estimated payment to SoundExchange is also a component of the hand-off provider and end-to-end costs, which means that the estimated payment to SoundExchange can be determined by rearranging this equation and solving for the payments to SoundExchange.

⁶¹ Of course, I could have obtained this same result by dividing the imputed SoundExchange payments by the end-to-end revenues earned by XM and Sirius. However, the discussion in the text retains the fundamental intuition of the approach here—that the PSS rate needs to be adjusted for the fact that XM and Sirius incur end-to-end costs and the PSS services do not.

1 by XM and Sirius. (See Exhibit 15.) Of course, this functionally-adjusted rate cannot be
2 the final rate because it fails to account for the non-music programming components of
3 XM and Sirius, programming which is unavailable on Music Choice, DMX, and Muzak.
4 I make this adjustment in a subsequent section.

5 e. *Other considerations*

6 There are a number of issues that might be raised in using this approach to
7 estimate a functionally-adjusted rate. First, my calculations rely upon a categorization of
8 cost line items maintained by XM and Sirius in the normal course of business, and as
9 such, these cost categories were not created inherently to distinguish between hand-off
10 provider and end-to-end functions. I adopted an approach that is reasonable, which is to
11 allocate these costs that I could not assign to the hand-off provider level by the ratio of
12 assignable costs at that level to assignable end-to-end costs.

13 A second issue is that some of the accounting costs may not accurately reflect
14 economic costs. Most obviously, the interest cost of debt is a component of both the
15 hand-off provider and the end-to-end costs and is included in the analysis, but I have not
16 accounted for the cost of equity. Because the end-to-end costs encompass some of the
17 riskiest components of the XM and Sirius business—such as those arising from the need
18 to design and develop a satellite transmission infrastructure quite different than an off-
19 the-shelf satellite system and associated receivers—the end-to-end costs may be
20 substantially understated. Similarly, I have not accounted for the over \$3 billion of losses
21 already incurred by each of XM and Sirius in offering their services, losses that would (if
22 amortized) likely increase the end-to-end costs of XM and Sirius relative to the hand-off
23 provider costs. In short, I have no reason to believe that accounting biases would result
24 in a systematic understatement of the cost ratio, and many of those biases result in an
25 overstatement of the cost ratio, and so result in an excessive rate.⁶²

⁶² A third possibility is that the relationship of relative revenues and relative costs may not be one-to-one because many of the end-to-end costs are being incurred in anticipation of future subscribers. That is, because those end-to-end costs are intended to support future as well as current subscribers, the ratio of hand-off provider-equivalent costs to end-to-end costs will appear artificially low and as a result, so may the corresponding imputed SoundExchange payments. However, there is no particular reason to believe that the fraction of hand-off provider-level costs that are undertaken in anticipation of future revenues would differ from the analogous end-to-end fraction.

1 Of course, these functionally-adjusted rates for the SRPR are excessive because
 2 (among other things) they fail to account for the extent to which non-music components
 3 of the XM and Sirius service generates revenues for the two services. We turn to those
 4 additional adjustments now.

5 **VIII Accounting for Revenues Generated by Non-Music** 6 **Programming on XM and Sirius**

7 In addition to the functional adjustment of the PSS rate, the PSS rate also needs to
 8 be adjusted for the fact that unlike the PSS, XM and Sirius both offer non-music channels
 9 and music channels to their subscribers. As I have already explained, those services
 10 appear to have a significant impact on attracting and retaining subscribers. Accordingly, a
 11 portion of XM and Sirius revenues are generated not by music but by non-music services.
 12 Without accounting for the effect of non-music programming on revenues, the
 13 application of the adjusted PSS rate to the end-to-end revenues of the two services will
 14 result in an overpayment to SoundExchange. In this section, I consider a number of
 15 methods to account for the availability and importance of non-music services to XM and
 16 Sirius subscribers.

17 a. ***Programming adjustment using listenership data***

18 Listenership data collected by both XM and Sirius provide one way to account for
 19 the importance of non-music programming to subscribers. XM collects channel-specific
 20 listenership through Arbitron, where listening is measured using Arbitron's average-
 21 quarter-hour listening.⁶³ Sirius conducted a survey of its subscribers that asked, among
 22 other things, how many hours they spent listening to music and non-music programming
 23 in the last week prior to the survey.⁶⁴

24 A key limitation with the listenership data is that its correlation with the value
 25 consumers place on music and non-music is uncertain. There may well be some non-
 26 music channels (or music channels) that are highly valued but not listened to for any

⁶³ XM Arbitron Custom Study, Fall 2005. The average quarter hour measure is for Monday to Sunday, 6 AM through midnight.

⁶⁴ *Sirius Customer Satisfaction Monitor 2Q '06 Results*, August 28, 2006, p. 22. The survey polled
 [[]] Sirius subscribers, who on average listened to music for [[
]] of listening to all Sirius channels.

1 extended period of time (e.g., the NFL or local weather and traffic channels). Thus,
 2 listenership is very likely an imperfect indicator of the value that consumers place on
 3 non-music services relative to music services. Nonetheless, a listenership adjustment is
 4 an obvious one to consider. The listenership data indicates that [[]] of all of XM's
 5 listenership is accounted for by music. For Sirius, the corresponding figure is [[]]. If
 6 the functionally-adjusted rates are modified to account for these listenership patterns,
 7 then this programming adjustment results in a corrected rate for XM of [[]] and
 8 [[]] for Sirius.

9 b. *Programming adjustment using a channel attachment index*

10 The channel attachment index I discussed previously provides another way to
 11 account for the importance of non-music programming to subscribers. Data on those
 12 consumers who are prepared to cancel the service if any particular channel is withdrawn
 13 provide an indication of the intensity of their demand for a particular channel:
 14 Notwithstanding the availability of other channels on the services, these consumers are
 15 prepared to forego the entire service if a particular channel is unavailable. These data are
 16 similar to survey data often compiled in antitrust matters to identify the products that are
 17 close substitutes for the product under antitrust scrutiny. The consumer is asked what
 18 product he/she would choose if a preferred product was unavailable. Here, the question
 19 is analogously informative: Is the channel in question so important to the subscriber that
 20 he/she would choose to cancel the Sirius subscription if this channel were eliminated
 21 from Sirius' channel lineup, notwithstanding the array of other channels available on the
 22 service. In this way, the Sirius cancellation data provide useful information on the
 23 importance to consumers of music versus non-music channels.⁶⁵

24 As I explained previously, for each Sirius channel, I calculate the fraction of
 25 Sirius subscribers responding that they would cancel their Sirius subscription if the

⁶⁵ Of course, a consumer who cancels his/her Sirius subscription as a result of withdrawal of a particular channel on Sirius may choose to subscribe to another service (like XM) that does offer a channel comparable to that lost on Sirius. However, there is no reason to conclude that there is a differential availability of attractive music channels on alternative services relative to attractive non-music services. Thus, there is no reason to believe that the differences in cancellation rates more likely reflect the relative availability of alternatives to Sirius for the withdrawn service rather than the relative intensity of demand for those services.

1 channel were dropped. Because listenership varies across channels, I weight these
 2 cancellation percentages by the fraction of subscribers who responded that they had
 3 listened to the channel in the previous week. Finally, I calculate the sum of these
 4 weighted cancellation percentages for music channels, and then take that sum and divide
 5 by total of the weighted cancellation percentages across all channels (music and non-
 6 music channels). In this way, I create an index of the attachment of subscribers to music
 7 channels relative to non-music channels.⁶⁶

8 Because I only have cancellation data for Sirius, I use the same data for XM as
 9 well. However, in the case of XM, I exclude Howard 100 and Howard 101 (channels
 10 with high cancellation percentages and high listenership). This assumes that the other
 11 music and non-music programming of the two services is roughly comparable in terms of
 12 listeners' attachment.

13 Including the Stern channels produces an index of the importance of music
 14 programming of [[]], while excluding the Stern channels increases the index to
 15 [[]]. If the functionally-adjusted rate is modified using these indices (I apply the
 16 with-Stern index to Sirius' functionally-adjusted rate and the without-Stern index to
 17 XM's functionally adjusted rate), this programming-adjusted rate would be [[]] for
 18 Sirius and [[]] for XM.

19 c. *Programming adjustment using program expenditure data*

20 One natural way of accounting for the significance of music relative to all
 21 programming on XM and Sirius is to apply a programming adjustment based on the ratio
 22 of music programming expenditures to total programming expenditures, which would
 23 reflect the relative importance of music programming and non-music programming for
 24 the Sirius and XM services. I understand that the two services have spent a substantial
 25 amount of money for non-music programming because they expect that these
 26 expenditures will lead directly to increased subscribers and subscription revenue.

27 For XM, we estimate music programming expenditures as [[]] and
 28 total programming expenditures as [[]] (including the imputed

⁶⁶ As in the other adjustments for non-music programming, here I treat Sirius' comedy and kids channels as music programming.

1 SoundExchange payment), the resulting ratio of music to total programming expenditures
2 being [[]].⁶⁷ Similarly, for Sirius, we estimate music programming expenditures
3 as [[]] and total programming expenditures as [[]]. In the
4 case of Sirius, the resulting ratio of music to total programming expenditures is
5 [[]]. This programming adjustment leads to a rate of [[]] for XM and
6 [[]] for Sirius.

7 The obvious appeal of this approach is that it highlights the important role that
8 non-music programming plays in the packaging of the two services. In particular, this
9 approach can be thought of as identifying the value that consumers place on the
10 programming containing sound recordings of the audio package compiled by XM and
11 Sirius relative to the value they place on the non-music programming.

12 However, the approach does have limitations. Roughly speaking, the adjustment
13 may not fully “meter” the revenues associated with music programming. Some
14 consumers who subscribe to the services largely because of the non-music programming
15 services will nonetheless listen to some music and that additional listening will not be
16 captured in this adjustment. So this particular programming adjustment may understate
17 the SRPR rate. However, to the extent that some consumers subscribe to the services
18 because of the music, some of those will also listen to the non-music programming, and
19 this adjustment approach would fail to account for the additional revenues associated
20 with resulting from the availability of non-music programming to subscribers.

21 Nonetheless, because the programming expenditure-based adjustment may
22 understate what a reasonable rate should be, I have not included those rates in my
23 consideration of the reasonable range of rates. However, this rate calculation does
24 underscore the importance of non-music to the services and their view of what
25 programming is necessary to attract additional subscribers. In so doing, it provides me
26 comfort that the lower bound I do include is reasonable.

⁶⁷ Music programming expenditures include the payment for the SRPR, which is determined as the result of this computation. For the sake of simplicity in calculating this adjustment, I use the estimated SRPR payment from the baseline case, which is conservative insofar as it will result in a higher programming-adjusted rate.

IX Summary of Rate Estimates Based on the 7.25% PSS Rate

It is my opinion that the PSS 7.25% rate paid by a hand-off provider service offering an audio package like that of XM and Sirius provides a useful benchmark rate to determine royalties payable to SoundExchange. Upon consideration of the differences between XM and Sirius on the one hand and the PSS on the other, I have identified the need for three significant adjustments (two of which are feasible given data limitations). The first is the functionality adjustment, accounting for the end-to-end mobile service provided by XM and Sirius in contrast to the more limited service offered by the PSS. The second is a programming adjustment accounting for the importance of non-music programming to XM and Sirius.

Exhibit 16 summarizes the complete analysis. As is obvious, the program-adjusted rates for XM and Sirius fall within a narrow range and given the similarity between the estimated rates of the two services, the use of the same rate for both seems reasonable. Thus, based on the PSS rate, a reasonable range for the SRPR rate for XM and Sirius is between []

Instead of the 7.25% starting rate, it may be more appropriate to consider a lower starting rate of 5.32% for a PSS. This lower rate, the derivation of which is explained above, reflects the logic of the original PSS decision but is based on the actual PRO benchmark rate that was used in that proceeding. Applying the adjustments to this lower rate results in a range of rates between [] for the two services. (See Exhibit 17.) (Of course, the rates in Exhibits 16 and 17 do not account for the 801(b) factors.)

Finally, the third adjustment stems from the value-added contributions made by XM and Sirius to music programming. To the extent that these enhancements result in a higher subscription price for the XM and Sirius services, then the SRPR holders may be overcompensated because I have not accounted for these enhancements in my analysis. Suppose, for example, that after adding the enhanced music, the number of sound recording performances remained unchanged but the price that consumers were willing to pay for the service increased. Under a per-listener/performance fee, the payments for the use of the SRPR would not change. But because the fee here is based on a percentage of

1 revenue, the payments to the SRPR holders will increase even though the number of
2 sound recording performances has not changed.

3 **X Appropriately Adjusted, the Payments Made by XM and**
4 **Sirius to the Performance Rights Organizations May**
5 **Provide a Useful Upper Bound to the SRPR Rate for XM**
6 **and Sirius**

7 Another useful benchmark for the SRPR royalty rate is the set of royalty
8 payments made to the performance rights organizations: ASCAP, BMI, and SESAC.
9 These payments are the royalties received by composers and publishers for the use of the
10 musical works public performance rights underlying the sound recording performance.

11 The appropriate SRPR payment should be no larger than the PRO payment. A
12 buyer of the sound recording performance rights needs both rights in order to render a
13 public performance of the sound recording. Thus, the buyer is in exactly the same
14 position with regard to the two broadcast rights: Both are needed to broadcast sound
15 recordings, and the benefit received by the buyer applies to both rights jointly. In
16 addition, each seller of the sound recording performance right is in the same position as
17 the seller of the musical works performance right for that sound recording. From the
18 seller's perspective, the direct cost of using either right for additional performances of a
19 sound recording is the same (zero).

20 The characterization that the sellers of the sound recording performance rights
21 and the musical works rights face zero incremental costs seems a good one as an
22 empirical matter. To see this, consider the fact that record companies earned a total of
23 \$24.4 billion from worldwide sales of recorded music in 2005.⁶⁸ Even supposing that
24 XM and Sirius both paid a PSS rate of 7.25%, (a completely inappropriate rate for the
25 reasons I have already explained), the combined payments by XM and Sirius to
26 SoundExchange would still account for less than 0.24% of recorded music revenues.
27 Accordingly, a reasonable conclusion is that the fees received by SoundExchange for the

⁶⁸ I estimate worldwide record company sales of \$24.4 billion by dividing Warner Music Group's \$2.924 billion in worldwide recorded music sales by its 12.0% share of retail record sales. See Warner Music Group, 2005 Annual Report, p. 2; International Federation of the Phonographic Industry, as reported in *Market Share Reporter*, 2007, Volume1, "Top Music Firms Worldwide, 2006," p. 446.

1 use of the SRPR from XM and Sirius would not have any detectable effect on the sound-
2 recording production decisions of the labels. Thus, the assumption that the cost of
3 extending the SRPR to XM and Sirius is effectively zero seems appropriate. Hence
4 (based on the direct costs and benefits of the transaction) whatever bargaining process is
5 used to determine one royalty rate would arrive at the same result for the SRPR royalty
6 rate as well. As I will discuss shortly, consideration of indirect promotional benefits
7 suggests that the SRPR royalty would be somewhat less than the musical works
8 performance royalty.

9 I understand that XM has negotiated a final rate with ASCAP of [[]] of its
10 adjusted gross revenues for the next five years for the use of the musical works
11 performance right to the music in the ASCAP library. In addition, I understand that
12 payments to SESAC are about [[]] of the payments made to ASCAP and BMI.⁶⁹
13 While XM has not yet negotiated a final rate with BMI, my understanding is that ASCAP
14 and BMI typically have the same rates.

15 As noted, the XM-ASCAP rate applies to adjusted revenues, where these
16 adjustments include certain deductions such as [[]] of subscriber acquisition costs. I
17 understand that the XM-ASCAP rate of [[]] of adjusted gross revenues accounts
18 for about [[]] of gross revenues. Accordingly, the total payment to the PROs made
19 by XM would be [[]] of gross revenues (i.e. [[]]). I also understand
20 that Sirius has not yet negotiated any final rates with the PROs; for purposes of this
21 discussion, I am assuming that the rates Sirius ultimately pays will be comparable if not
22 identical to those paid by XM.⁷⁰

23 For a number of reasons, the sum of these PRO rates is likely to be an upper
24 bound on the rate to be levied for the use of the SRPR. First, the PRO rates themselves
25 are negotiated in the shadow of the courts that administer the Department of Justice's
26 consent decrees for BMI and ASCAP. In order to become the sole agents for the musical
27 works performance rights in their respective libraries, ASCAP and BMI each had to agree

⁶⁹ XM's payments to SESAC were [[]] of the payments to ASCAP and BMI over 2005 and the first two quarters of 2006. (XM financials.) The corresponding figure for Sirius was [[]]. (Sirius financials.)

⁷⁰ However, I do understand that Sirius views the rates paid by XM as excessive and so believes that basing an upper bound on the PRO rates of XM is equally excessive.

1 to terms embodied in the consent decree, which were designed by the Justice Department
2 to constrain the exercise of monopoly or market power by each monopoly rights agent.⁷¹
3 In the event that the rights user believed the negotiated rates would be too high, it could
4 incur the costs of litigation to ask the courts administering the consent decree to
5 determine a reasonable rate for the use of the musical works in the library of each PRO.
6 However, the incentive to incur litigation costs may be different for a user of rights than
7 for the PRO. For the user, the rates are set for that particular use, while for the PRO the
8 rates can serve as a precedent for other ratemaking negotiations and proceedings
9 involving other uses, i.e., they could serve as benchmarks for rates in those other uses.
10 Because the benefit of a successful litigation is higher for a PRO than for a user, the PRO
11 will be prepared to bargain harder with the user for a higher rate. Thus, the current
12 ASCAP and BMI rates may be well in excess of that which would be forthcoming in a
13 more competitive market.

14 Second, the payments to the PROs do not reflect consideration of the 801(b)
15 factors and should be considered an upper bound for the SRPR rate to be levied on the
16 revenues of XM and Sirius. While I discuss the 801(b) factors below, some of that
17 discussion is worth foreshadowing here.

18 When a sound recording is performed on XM and Sirius, it generates a
19 promotional benefit to the SRPR holders in that some listeners who hear the performance
20 (and see the artist name and song title displayed on their receiver) may go out and
21 purchase a copy of that recording via a CD or download. As discussed below, this
22 promotional benefit spans the range of genres played on Sirius and XM, and applies to
23 both new and old recordings. While both the PRO and the SRPR holder benefit from the
24 additional sales of sound recordings, the incremental return on the sale of a sound
25 recording is likely to be greater than that for the holder of the musical works right
26 because the price of the CD itself is designed to recoup all of the costs borne by the
27 producer of the sound recording. Moreover, the increased exposure of artists will likely
28 increase the sales from concert tours, some of which will no doubt be contractually
29 captured by the labels. While we discuss these benefits in detail below, the effort exerted

⁷¹ See, for example, the discussion of the earlier decrees in the Department of Justice press releases describing more recent decree modifications: <http://www.usdoj.gov/opa/pr/2000/September/517at.htm> and http://www.usdoj.gov/atr/public/press_releases/1994/211869.htm.

1 by the labels to obtain airplay from terrestrial radio suggests that the flow of payments in
2 a more competitive market may well be from the SRPR holders to the SRPR users.

3 A third factor which leads to the conclusion that the use of the PRO rates as a
4 benchmark is an upper bound stems from the fact that the PRO rate is levied on the use of
5 all of the music in the PRO libraries. By contrast, it is my understanding that under the
6 Act, performances of pre-1972 recordings are exempt from the payment of the SRPR.
7 Thus, because the library of sound recordings is smaller than the entire library, if the
8 PRO rate were used as the starting point for setting the SRPR rate, one would have to
9 reduce that rate to reflect the reduction in the library of relevant recordings. In addition,
10 the services are not required to pay a SRPR fee for live performances and archival
11 performances, while payments to the PROs are required. This would require yet another
12 downward adjustment in the PRO rate before being applied to the revenues of XM and
13 Sirius as a SRPR rate.

14 An additional factor is the broader scope of the PRO license compared to the
15 SRPR license. The SRPR licensee is subject to the sound recording complement rule that
16 (unless granted an exception by the record companies, which may require additional
17 compensation) limits the number of songs played from a particular album to no more than
18 two in a row, or three in any three hour period. In addition, no more than three songs in a
19 row, or four in any three hour period, can be played from the same artist or boxed set.⁷²
20 There is no such limitation on the scope of the PRO license.

21 Finally, I note that Sirius has not as yet accepted the rate of [[]] of adjusted
22 revenues of the XM-ASCAP agreement. To the extent that Sirius and ASCAP agree
23 upon a lower rate, the upper bound of the range estimated here should be adjusted to
24 reflect this change. I understand that Sirius will be testifying regarding its view as to why
25 the ASCAP rate is excessive. I also understand that XM agreed to this rate with ASCAP
26 in light of other consideration.

⁷² For the complement rule see <http://www.copyright.gov/fedreg/1997/62fr34035.html>.

1 **XI Consideration of the 801(b) Factors Suggests that the**
 2 **SRPR Rate to be Paid by XM and Sirius Should Be**
 3 **Towards the Low End of the Range**

4 As noted at the outset, the rates ultimately established for the SRPR payment by
 5 XM and Sirius must reflect the Section 801 (b) factors:

- 6 (A) To maximize the availability of creative works to the public;
 7 (B) To afford the copyright owner a fair return for his creative work and the
 8 copyright user a fair income under existing economic conditions;
 9 (C) To reflect the relative roles of the copyright owner and the copyright user in
 10 the product made available to the public with respect to relative creative
 11 contribution, technological contribution, capital investment, cost, risk, and
 12 contribution to the opening of new markets for creative expression and media
 13 for their communication;
 14 (D) To minimize any disruptive impact on the structure of the industries involved
 15 and on generally prevailing industry practices.⁷³

16 Using the rates estimated above, a range of estimates for the reasonable rate of the
 17 SRPR can vary from [[] (based on the 7.5% PSS rate) to [[] (based on the
 18 PRO rates). However, the estimates based on payments to the performance rights
 19 organizations do not account for the 801(b) factors. As I understand it, those rates are
 20 subject to a willing buyer/willing seller standard. The rates based upon the PSS rate do
 21 reflect the 801(b) factors, but as they apply to Music Choice and (perhaps) DMX and
 22 Muzak, not to XM and Sirius.

23 What follows is my assessment of the performance of XM and Sirius in fostering
 24 objectives A, C, and D relative to the record companies (who I identify for shorthand
 25 purposes as the holder of the SRPR) and Music Choice, as a representative PSS. I
 26 conclude that based on these factors, the rate for XM and Sirius should be towards the
 27 lower end of the range of estimated rates. In satisfying these objectives, such a rate
 28 would provide a fair return to the holder of the SRPR because it accounts for these and
 29 marketplace factors.

⁷³ 17 U.S.C. 801(b)(1).

1 a. *Evaluating the role of XM and Sirius in promoting the availability of*
2 *music*

3 In evaluating the XM and Sirius contribution to the “availability” of music,
4 “availability” can be interpreted in terms of music distribution, i.e., transmitting more
5 music and more types of music to more listeners, or in terms of the supply of music, i.e.,
6 the creation of more music.

7 I understand that in previous decisions, the Librarian has interpreted “availability”
8 to mean only the production of sound recordings.⁷⁴ However, an economist would
9 naturally interpret “availability” to encompass both distribution and production. And
10 given the nexus between the two described below, that interpretation is key to
11 understanding how distribution affects the production of sound recordings. I discuss each
12 of these in turn.

13 i. Availability interpreted as music distribution

14 The XM and Sirius services currently encourage the more widespread availability
15 of music in a number of ways. First, the services offer subscribers a substantially wider
16 array—in terms of formats or stations within a format—than do over-the-air radio and
17 Music Choice. Sirius and XM both provide more music channels than are found in even
18 the largest terrestrial radio markets, and those channels cover a more diverse set of
19 genres. While Sirius has 71 music channels and XM has 80, the five largest radio
20 markets, as measured by BIA, have an average of 43 music stations.⁷⁵ Of these music
21 stations in the largest terrestrial radio markets, 52% are in the rock or pop genres. In
22 contrast, pop and rock stations at XM and Sirius account for only 39% and 45%,
23 respectively, of the music channels.

24 The remaining channels span a wider array of formats than are found even in the
25 top five radio markets. For example, the top five radio markets have no stations
26 dedicated to playing kids music and only one station (in San Francisco) using a dance
27 music format. Both Sirius and XM have multiple channels in each of those formats.

⁷⁴ See Librarian Decision 1998 at 25406.

⁷⁵ Information on terrestrial radio markets is from the 2006 BIA Investing In Radio Market Report; see Exhibit 18. See Exhibits 3 and 4 for the channel lineups on XM and Sirius.

1 Moreover, even within the common genres, there is a greater diversity in the
2 satellite radio offerings. For example, four of the top five terrestrial radio markets have
3 only one station in the jazz and blues genre. The fifth, San Francisco, has two, but both
4 offer a smooth jazz format.⁷⁶ In contrast, both Sirius and XM have five channels in the
5 jazz and blues genre, with each channel focused on a different subgenre (classic jazz,
6 modern jazz, blues, etc.). The contrast between the number and range of choices for
7 music available on Sirius and XM and what is available on terrestrial radio in smaller
8 markets would be even more pronounced.

9 Similarly, both XM and Sirius offer more music channels than Music Choice,
10 indicating that the contribution of XM and Sirius to music distribution is greater than that
11 of Music Choice. (See Exhibit 6.)

12 Second, the labels do not expend any incremental effort to provide music to XM
13 and Sirius that will enhance the transmission of the music provided by the two services.
14 The labels are not involved in those transmission decisions and so do not enhance the
15 availability of music in terms of its distribution.

16 ii. Availability interpreted as the supply of new music

17 I earlier observed that availability can also be interpreted to mean the supply of
18 sound recordings. To be sure, the recording companies, the performers, and composers
19 are directly involved in the production of music, unlike XM/Sirius. But as I noted above,
20 even if XM and Sirius were to pay SRPR fees at the inappropriate and excessive rate of
21 the PSS, those payments would likely have an undetectable effect on increasing the
22 supply of sound recordings.⁷⁷ Moreover, the fees paid by XM and Sirius for the SRPR
23 may represent fees that record companies would not otherwise accrue. As shown in
24 Exhibit 11, most of the listening to Sirius is diverted from over-the-air radio which pays
25 performers and the holders of the SRPR nothing for airplay. SoundExchange benefits
26 directly from this conversion of over-the-air listeners to XM and Sirius subscribers
27 because terrestrial radio does not pay a SRPR fee.

⁷⁶ See 2006 BIA Investing In Radio Market Report, p. 2.

⁷⁷ Indeed, it appears that nearly a third of the revenues collected by SoundExchange are not distributed to the responsible artists, further diminishing any effect of the SRPR fee on encouraging the supply of new musical works. See http://soundexchange.com/news/documents/SoundExchange_PR_6_14_05.pdf.

1 In addition, there is normally a tension in simultaneously attempting to increase
2 both the distribution of a product and the supply of a product. A lower price charged by
3 the distributor for the product will the increase number of consumers to whom the
4 product is available, but can reduce the earnings of the product supplier and so reduce the
5 supply of the product.

6 Here, the tension between these two goals is muted if not completely absent. A
7 lower SRPR fee leading to more widespread distribution of the XM and Sirius services
8 will expose listeners to artists, songs, and genres more or more effectively than would
9 otherwise be the case. That exposure, in turn, will tend to encourage the sale of music
10 (CDs, downloads) to final consumers, thus benefiting the artists and recording companies
11 and thereby encouraging the production of new sound recordings. While the SRPR
12 payments themselves by XM and Sirius may have no measurable effect on encouraging
13 new sound recordings, that does not mean that the services do not contribute to
14 expanding the supply of sound recordings. The evidence certainly suggests that the
15 recording industry values the promotional impact of XM and Sirius (or services like
16 them) on sales of sound recordings and concert tickets.

17 Record companies engage in numerous promotional practices to increase airplay
18 for their artists. Some of the practices used to influence terrestrial radio airplay have
19 recently received considerable notoriety in the investigation carried out by the New York
20 State Attorney General. As the AG's office noted in the press release announcing a
21 settlement with Universal Records, "Radio airplay is the single most effective driver of
22 music sales."⁷⁸ Among the practices documented in that investigation are payments to
23 radio stations and programmers, sponsorship of events and listener contests, and use of
24 independent promoters, all efforts intended to increase the airplay of the label's sound
25 recordings.⁷⁹

26 While promotion on terrestrial radio is an important and ongoing component of
27 the marketing strategy of record companies, the effectiveness of that component is
28 limited by the range of programming carried over broadcast radio. A 2001 article from

⁷⁸ http://www.oag.state.ny.us/press/2006/may/may11a_06.html

⁷⁹ See "Executive fired amid charges of payoffs", *New York Times*, January 12, 2005; "Sony BMG settles radio payola probe", *Washington Post*, July 26, 2005; "Music labels say it costs too much to get songs on the radio," *The Wall Street Journal*, June 10, 2002, p. B1.

1 Billboard begins by stating the problem: “While labels have increased the amount of new
 2 product coming through the pipeline, radio has tightened its playlists. It's like trying to
 3 pour a gallon of water into a pint-sized container.”⁸⁰ The article concludes quoting Fred
 4 Mills, a promotion representative from DreamWorks: “Maybe we will have to find other
 5 avenues to expose product, whether it be through more fragmentation of formats, the
 6 Internet, satellite radio, or visual mediums.” Thus this article, written shortly before
 7 satellite radio service was launched, had already begun envisioning a role for satellite
 8 radio in expanding the promotional reach of record labels.

9 From the inception of service, an element of the strategic plan for satellite radio
 10 was to develop promotion opportunities for record companies, taking advantage of the
 11 scale economies and national coverage of satellite radio.⁸¹ This has been accomplished
 12 by the breadth of musical styles covered among the music channels as well as specific
 13 opportunities to feature and promote artists.⁸² For example, XM has an Artist
 14 Confidential series in which an artist from somewhere across the spectrum of musical
 15 genres gives a live performance from XM's performance theater, which is broadcast on
 16 the appropriate music channel.⁸³ Numerous shows anchored by celebrity hosts on both
 17 Sirius and XM provide opportunities to expose devotees of particular music formats to
 18 new or less well known artists.⁸⁴ XM produces a program called “Then...Again...Live”
 19 that features classic rock performers giving live renditions of their classic rock and
 20 another called “Offstage” in which XM visits a performer at his or her home and
 21 broadcasts a show from that home.⁸⁵ Sirius also broadcasts a number of live shows, both
 22 from its own studios and from remote locations such as those hosting various winter

⁸⁰ “Radio and labels at odds again,” *Billboard*, May 12, 2001, p. 135.

⁸¹ See 2001 Form 10-K, XM Satellite Radio Holdings Inc., p. 4

⁸² See “Start Me Up: satcasters go early on new artists,” *Billboard*, March 17, 2006, p. 135.

⁸³ See 2005 Form 10-K, XM Satellite Radio Holdings Inc., p. 8; *Satellite Radio Outlook*, Kagan Research, LLC, July 2005, p. 74.

⁸⁴ Among the hosts of music shows on Sirius are Eminem, Tony Hawk, and Jimmy Buffett; XM hosts include Snoop Dogg, Bob Dylan, Tom Petty, and Ludacris. See <http://www.sirius.com/servlet/ContentServer?pagename=Sirius/Page&c=Page&cid=1065475754125> and <http://www.xmradio.com/exclusivemusic/>.

⁸⁵ See <http://www.xmradio.com/exclusivemusic/offstage.jsp>

1 extreme-sports events. These efforts go beyond anything undertaken by the PSS audio
2 services.

3 Satellite radio has also provided a forum for airplay for veteran artists who, while
4 no longer listed on the top of the charts essential for terrestrial radio playlists,
5 nevertheless are able to reach potential buyers among devoted fans listening to the
6 targeted musical formats on satellite radio.⁸⁶ Emails received from subscribers⁸⁷ and
7 artists⁸⁸ attest to the value of airplay on satellite radio in increasing CD and download
8 sales.

⁸⁶ See “Stymied by radio, veteran acts try new outlets,” *Billboard*, January 29, 2005, p. 30; “XM credited for band’s worldwide exposure,” *Richmond Times Dispatch*, August 10, 2006, p. F-11.

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1 Furthermore, there is no evidence to support the proposition that satellite radio
2 listenership displaces any CD or download sales, let alone by a large enough amount to
3 offset the substantial promotional benefits.⁸⁹ In addition, the sound recording
4 complement rule described previously further limits the ability of XM and Sirius listening
5 to substitute for purchasing recorded music.

6 Moreover, accounting for the effect of satellite radio listenership on CD purchase
7 or downloading habits (and associated consequences to SRPR holders) would require
8 systematic review of potential changes in all of the other ways in which subscribers may
9 use their discretionary time (e.g. DVD watching, video game playing, use of iPods,
10 listening to over-the-air radio, etc.), making the empirical effort difficult at best.

11 In short, the transmission of music by XM and Sirius is unlikely to reduce, and in
12 fact is likely to enhance, the production of music by the recording artists and the record

II

⁸⁹ While not directly relevant, it is instructive to note that there is a growing literature on the effect of music downloading on CD sales and concert revenues. On music downloading, there is no clear consensus on the direction or magnitude of the effect of downloading on CD sales. For example, a 2005 study by Oberholzer and Strumpf finds no statistically significant effect of file-sharing on CD sales. (See Oberholzer and Strumpf, “The Effect of File Sharing on Record Sales: An Empirical Analysis,” Working Paper, 2005.) A 2004 study by Blackburn finds that file-sharing has a negative impact on the sales of an average CD, though it has a positive effect for relatively unknown artists and a negative effect for popular artists. (See Blackburn, “On-line Piracy and Recorded Music Sales,” Harvard University Dissertation Thesis, 2004.) On concert revenues, Mortimer and Sorenson find that music downloading has eroded CD sales, but that the loss of these revenues is more than offset by increases in the number of live concert performances and the profitability of those performances. (See Mortimer and Sorenson, “Supply Responses to Digital Distribution: Recorded Music and Live Performances, Working Paper, 2005.) If downloading has no clear displacement effect or effect on artists’ incomes, then it seems even less likely that listening to satellite radio would lead to displacement.

1 labels. Application of this factor to XM and Sirius suggests that a reasonable rate would
2 be at the lower end of the range.

3 b. *Evaluating the role of XM and Sirius in “creative contribution,
4 technological contribution, capital investment, cost, risk, and
5 contribution to the opening of new markets for creative expression”*

6 In this section, I review the role of XM and Sirius in advancing the objectives of
7 the 801(b) factor (C), relating to creative contribution, technological contribution, capital
8 investment, cost, risk, and contribution to the opening of new markets for creative
9 expression and media for their communication. I discuss each in turn.

10 i. Creative Contribution

11 With respect to “creative contribution,” it is certainly true that record labels and
12 performers (along with composers and publishers) are directly involved in the music
13 production process. Nonetheless, I am unaware of any evidence that the labels expend
14 any incremental effort to create new music for XM and Sirius. This is not surprising
15 since as previously noted, any fees paid by XM and Sirius for the SRPR would be a very
16 small fraction of their overall revenues.

17 However, both XM and Sirius have invested in the creation of attractive non-
18 music content, including music-related programs (such as Willie’s Place hosted by Willie
19 Nelson) and other programs (including Oprah, Martha Stewart, and MLB). In addition,
20 both services have incurred costs to tailor their experienced music programmers and
21 personalities to various music channels in order to make those channels more attractive to
22 listeners. None of the music channels offered by Music Choice have such enhancements
23 and Music Choice offers only music programming. In this important programming
24 dimension, XM and Sirius clearly deserve more weight than Music Choice as creative
25 contributors.

26 The non-music focus of XM and Sirius has likely increased the number of
27 subscribers to these services. For example, as noted previously, the skew of XM and
28 Sirius towards non-music programming and the apparently substantial attachment that
29 subscribers have to the non-music program offerings have likely attracted subscribers
30 who may have been “talk-focused” but still listened to some extent to music on terrestrial

1 radio. Some, if not all, of these subscribers will switch their music listening from
2 terrestrial radio to the music services of XM and Sirius and so will contribute to the
3 SRPR payments being made to performers. Moreover, the addition of the non-music
4 services may result in greater promotion of the sale of sound recordings by these new
5 subscribers to the extent that these subscribers either increase their music listening above
6 what it was prior to subscribing to XM or Sirius or because they take advantage of the
7 other promotional aspects of the XM and Sirius services, namely, song and singer
8 identification.

9 ii. Technological Contribution

10 The technological contribution of XM and Sirius to music distribution is
11 substantial and one in which the recording industry played no role. As noted above, both
12 Sirius and XM developed their own satellite systems to provide a mobile service and
13 developed the chipsets required for the satellite radios themselves. With respect to the
14 radios in particular, [[

15
16

17]] That was an effort undertaken by XM. In
18 addition, the antenna for the vehicle installation needed to be as unobtrusive as
19 possible—a design effort that was also undertaken by XM. I understand that the first XM
20 antennas were quite bulky, but now are about the size of a quarter, which has enhanced
21 the ability of XM to attract OEM partners.

22 My understanding is that Sirius also faced many of these same technological
23 hurdles in developing its service. Sirius developed a chipset with the assistance of
24 Lucent that was capable of receiving and playing the satellite signals, and built into these
25 chipsets the ability for its radios to choose the strongest signal source (either of two
26 satellites or terrestrial repeaters) and buffer the signal so that, for example, the broadcast
27 is uninterrupted when driving through an underpass. Sirius also incurred the costs
28 associated with developing unobtrusive (so that they can easily be installed on the roof of
29 a vehicle) antennas capable of receiving its programming (in contrast, satellite television
30 services like DirecTV require antennas greater than a foot and a half in diameter). Sirius

1 also works with consumer electronics companies and OEM partners to subsidize the
2 development of new radios and the integration of Sirius radios into new automobiles.

3 Both XM and Sirius have received patents for a number of their innovations. XM
4 has 42 patents, with 8 more pending, while Sirius has 12 patents and 2 pending. As an
5 example, XM has more than 10 patents related to the design of mobile antennas that can
6 access satellite signals, while Sirius was awarded several patents related to using the
7 elliptical geosynchronous orbit of its satellites. A complete listing of the patents can be
8 found in Exhibit 19.

9 Investments in R&D have totaled [[]] over the past 3 years for XM.
10 Sirius, which tracks expenditures on engineering, design, and development, has spent
11 [[]] in the past 3 years. (See Exhibit 20.) There is no corresponding
12 incremental contribution by the recording companies in expanding and improving upon
13 the innovations in satellite radio.

14 Similarly, the innovations of XM and Sirius are not matched by those of Music
15 Choice. Music Choice has relied on conventional distribution schemes (transponder
16 leases on conventional satellites and use of the existing cable infrastructure) while XM
17 and Sirius created an entirely new music distribution system. The number of patents
18 received by Music Choice is significantly less than that of XM and is also smaller than
19 that of Sirius. Among the innovative features pioneered by XM and Sirius are the plug-
20 and-play satellite radio concept that allows the same radio to be used in a home docking
21 station or in an automobile; the development of a portable/wearable radio, including the
22 miniaturization of the antenna, that allows subscribers to receive live satellite radio
23 broadcasts; the initial chipset development for satellite radios and the subsequent
24 reduction in size, reduction in power consumption, and improvements in signal
25 reliability; and work with automobile manufacturers to integrate satellite radio antennas
26 into their vehicles. (See Exhibit 19.)

27 iii. Capital Investment, Cost, and Risk

28 XM and Sirius have expended considerable funds on both capital investments and
29 R&D investments to deploy a satellite radio service—the design and production of
30 receivers, the acquisition of the land rights and the positioning of repeaters, the satellite

1 design itself, all done well in advance of service launch. These investments have totaled
2 [[] since inception for XM and [[] million for Sirius, or more than
3 [[] dollars combined across the two services. (See Exhibit 21. Exhibit 22
4 details the services' satellite expenditures.) They also have invested in developing
5 innovative content for both the music and non-music services (which in turn, attracts
6 more listeners to the service). By contrast, the recording companies have not incurred
7 any incremental investment or any other costs with respect to the development and
8 deployment of satellite radio service or programming on that service.

9 Similarly, XM and Sirius have likely expended far more in capital investments
10 and other costs than Music Choice. Music Choice relied on standard satellite
11 transmission technology and cable infrastructure for the deployment of its service and
12 provides only all-music channels. XM and Sirius developed a customized satellite radio
13 service for mobility in a nationwide footprint.

14 The same higher level of expenditures associated with satellite radio service also
15 represents highly risky investments on the part of the two services. They deployed new
16 satellite technology, bought and launched their own satellites, invested in the chipset and
17 other aspects of the satellite radio itself, invested in the development of non-music
18 content for both the music and non-music channels, and invested in the promotion of a
19 new service that still has no guarantee of ultimate success.

20 The only possible risk that the recording labels incur is that of displacement of
21 CD or download sales, but as discussed above, there is no credible reason to believe that
22 such displacement is either significant or indeed exists at all. In fact, to the extent that
23 XM and Sirius provide another avenue of exposure promoting the artists, CD sales,
24 downloads, and concerts, the overall risk of recording and distributing CDs and
25 downloads to the recording companies and of selling concert tickets may be reduced.
26 Moreover, to the extent that XM and Sirius subscriptions come at the expense of
27 terrestrial radio, the recording artists and labels will earn fees for the SRPR that they
28 would otherwise not receive.

29 It is also likely that the risk incurred by XM and Sirius is greater than that
30 incurred by Music Choice, both at the outset and today as well. As noted, XM and Sirius
31 developed their own satellite and radio technology while Music Choice relied largely on

1 existing technology. In addition, the size of the financial stake—the magnitude of the
2 investments that are at risk for XM and Sirius—is likely much more substantial for Sirius
3 and XM.

4 iv. Opening New Markets

5 As noted previously, the development of satellite radio has provided a mobile
6 service that offers more music and non-music services than is available via traditional
7 radio. XM and Sirius both overcame substantial obstacles in order to obtain licenses from
8 the FCC. In 1990, Sirius first approached the FCC regarding the possibility of allocating
9 satellite spectrum for a satellite-based radio service. The services (or their corporate
10 predecessors) applied to the FCC for licenses in 1992. It wasn't until 1997 that XM and
11 Sirius were awarded the licenses.⁹⁰ Chief among the obstacles confronted by XM and
12 Sirius in seeking the licenses was the persistent objections by what I have understood to
13 be one of the most powerful lobbying organizations in the country, the National
14 Association of Broadcasters whose members include commercial over-the-air radio
15 stations. As the above discussion suggests, there has been no effort by the recording
16 companies to assist either the initial acquisition of the licenses or in the development of a
17 mobile satellite radio service.

18 The key contrast with the contributions of Music Choice and other PSS to
19 opening new markets is the development of the mobile satellite radio service. The PSS
20 introduced cable operators and their subscribers to a new way of receiving in-home music
21 without commercials. XM and Sirius went substantially beyond the efforts of the PSS by
22 providing an end-to-end mobile service. This effort, unlike the efforts of the PSS,
23 required the development of complex technology required to support that service. In
24 addition, XM and Sirius both offer subscribers more channels of music and more music
25 diversity than the PSS, providing an increased opportunity for subscriber exposure to new
26 artists and different music genres. This discussion suggests that the contribution of XM
27 and Sirius to opening new markets is more substantial than that of the PSS, particularly in
28 light of the required new technology development by XM and Sirius. Indeed, while XM

⁹⁰ See FCC News Report No. IN 97-4, "FCC Announces Plan for Satellite DARS," at http://www.fcc.gov/Bureaus/International/News_Releases/1997/nrin7004.txt.

1 and Sirius appear several times in one compilation of a list of important events in radio
2 history, Music Choice does not appear at all.⁹¹

3 c. *Evaluating the potential for a SRPR rate that could prove disruptive to*
4 *the satellite radio business*

5 Under Section 801(b), the statute requires that the chosen SRPR rate “minimize
6 any disruptive impact on the structure of the industries involved and on generally
7 prevailing industry practices.” XM and Sirius clearly have not turned the corner on the
8 profitability of their service. As shown in Exhibit 23, XM lost \$667 million last year,
9 while Sirius lost \$863 million. The cumulative losses to date for each company are well
10 over \$3 billion. Indeed, analyst reports suggest that it will take several years before XM
11 and Sirius have positive net income. These projections rely on the assumption that both
12 companies will at least double the number of subscribers over that time frame; if these
13 additional subscribers do not materialize, then the companies will not turn a profit.⁹² And
14 of course even if things play out according to the projections, total accumulated losses
15 will have risen by another billion dollars or more by the time these companies reach the
16 break even point.⁹³ This suggests that for some time to come, both XM and Sirius will
17 remain financially fragile. That fragility is underscored by the sea of competition faced
18 by Sirius and XM. Most obviously, every vehicle produced (as far as I know) has as
19 standard equipment an AM-FM radio by which consumers can listen to music and talk
20 “channels.” As noted earlier, in the five largest radio markets, free over-the-air radio
21 provides listeners on average with 43 music channels and 74 channels in all. (See Exhibit
22 18.)

23 Because terrestrial radio pays no SRPR fee for its over-the-air service, that tilts
24 the competition towards terrestrial radio. When considering adding more music to their
25 services, terrestrial radio, XM and Sirius will consider the costs and benefits of adding
26 that music. But in performing that calculus, over-the-air radio will not account for a
27 SRPR fee that it does not have to pay, and thus has a greater incentive at the margin to
28 play more music.

⁹¹ See http://beradio.com/features/radio_today_radio_history/.

⁹² See “Satellite Radio Outlook,” op. cit., pp. 5-15.

⁹³ See “Satellite Radio Outlook,” op. cit., p 15.

1 In the near term, the competition provided by terrestrial radio to XM and Sirius is
 2 likely to become more intense as radio goes digital. One website notes that as a result,
 3 radio will offer more genres of music, more non-music programming, real-time traffic
 4 reports and stock prices, and real-time song, singer, and album identification. The site
 5 notes that these services will be provided “**free of charge** like radio should be” (emphasis
 6 in the original) and with “no subscription costs, no plans, and no monthly bills.”⁹⁴

7 Moreover, competition with over-the-air radio may be becoming more intense in
 8 other dimensions as well. I understand that some large group owners of radio stations
 9 have begun reducing the number of commercials on air or to make those commercials
 10 less intrusive.⁹⁵

11 In addition, XM and Sirius are not likely to be less financially fragile than Music
 12 Choice. Indeed, the financial stake in success or failure is much greater for XM and
 13 Sirius than for Music Choice. In 2005, the revenues of Music Choice were only 0.9% of
 14 the total operating expenses of XM and 1.0% of the total operating expenses of Sirius.⁹⁶

15 These circumstances suggest that the established SRPR should be set towards the
 16 lower end of the range. In considering where to set that rate, an economist would also
 17 consider the asymmetric effect of making a mistake in setting the SRPR rate. If the rate
 18 is set too low, the recording companies will not exit the industry nor will there be any
 19 measurable effect on the companies’ incentives to create new sound recordings. If the
 20 rate is mistakenly set too high, XM and Sirius will likely confront a substantial increase
 21 in financial risk which in turn will result in a curtailment of their services offered and a
 22 reduction in their ongoing investments in innovation.

23 d. ***Providing a fair return to both the copyright owner and copyright user***
 24 ***under existing economic conditions***

25 A rate towards the lower end of the range described above satisfies the statutory
 26 requirement that the rate be fair to both the copyright owner and copyright user. First, the

⁹⁴ See http://www.hdradio.com/what_is_hd_digital_radio.php.

⁹⁵ See “Fewer commercials on the horizon?” CNNMoney.com, August 15, 2005; “Satellite option forces traditional radio to alter format” *Newsday*, December 11, 2005.

⁹⁶ Music Choice earned \$10.3 million in fiscal 2005. See Hoover’s Company Record – Basic Record, Music Choice, 8.22.06; 2005 Form 10-K, XM Satellite Radio Holdings Inc., p. 35; 2005 Form 10-K, Sirius Satellite Radio Inc., p. F-4.

1 Music Choice benchmark used here is a negotiated rate and so must be viewed by both
2 parties as “fair” in light of all of the statutory standards. The rate is “fair” to the
3 copyright owner precisely because it is based on that benchmark and is consistent with
4 the music works rates that are market-driven. That rate (or a rate towards the lower end of
5 the range) will also permit satellite radio to remain competitive with the numerous
6 competitive alternatives to satellite radio.

7 Similarly, the rate “fairly” compensates the copyright holder for the use of the
8 SRPR by XM and Sirius. Indeed, to the extent that satellite radio acquires its subscribers
9 because it attracts them from over-the-air radio, the holders of the SRPR will clearly
10 benefit. Subscribers are being diverted from a medium (over-the-air radio) that has no
11 obligation to compensate performers and SRPR holders to one that does (satellite radio).

12 **XII Conclusion**

13 Based on the foregoing analysis, I conclude that a reasonable range for the SRPR
14 fee to be paid by XM and Sirius should be between [[]]. This rate range
15 is based on rates paid by analogous services or for analogous rights. Consideration of the
16 801(b) factors leads me to the conclusion that the rate should be set at the lower end of
17 the range. I understand that XM and Sirius are proposing a rate of 0.88% and such a rate
18 would be consistent with the analysis I have conducted.

19 Given the data available, there are a number of reasons to regard this estimated
20 range as generally conservative. First, I have not accounted for the value to subscribers
21 of the enhancements that each service creates for its music channels. Thus, some of the
22 payments to SoundExchange will be excessive in that they reflect the subscriber value of
23 the enhancements rather than the value of the underlying music. This means that
24 programming adjustments based on listenership and subscriber cancellation rates may
25 overstate the value of the underlying sound recording performances on the music
26 channels. In particular, the listenership adjustment counts all music listening without
27 counting the effect of the music programming enhancements on music listening. Thus, I
28 may be giving credit to the sound recording performance that in fact is attributable to the
29 programming enhancements. While the attachment index based on cancellation rates
30 may be a better indicator than listenership of the value that consumers place on music and

1 non-music programming, those subscribers who indicate that they are prepared to cancel
2 the Sirius service if a favored music channel is pulled from the Sirius lineup may be
3 doing so at least in part because of the music channel enhancements. This index, then,
4 may also overstate the significance of the sound recording performance for rate-making
5 purposes.

6 Second, in tallying the costs of the end-to-end level, I have not accounted for the
7 cost of equity capital acquired by both services. Given the substantial inherent riskiness
8 of the two services, as indicated by their cumulative losses, this is a significant omission
9 and likely results in a substantial overstatement of the hand-off provider costs relative to
10 the end-to-end costs. Nor have I accounted for the cumulative losses that the two
11 services have already incurred.

12 Third, the PRO rates likely overstate the “true” upper bound of the range of
13 reasonable rates. Those rates may be excessive because of the incentive of the PROs to
14 harden their bargaining stance in light of the possible precedential value of the rates. In
15 addition, I have not accounted for the fact that pre-1972 sound recordings, live
16 performances, and archival performances are not subject to the SRPR while all musical
17 works performances result in payments to the PROs. That failure results in an
18 overstatement of the upper bound. Moreover, the sound recording performance license is
19 more restrictive than the musical works license because of the sound recording
20 performance complement. Thus, other things equal, the PRO right would be more
21 valuable than the sound recording performance right.

22 Fourth, neither the PRO upper bound rate nor the rates that derive from my use of
23 the PSS rate as a benchmark reflect the 801(b) factors. I have concluded that the
24 application of the factors to XM and Sirius would result in a rate towards the lower bound
25 of the range. But I have not suggested that those factors should be lower than that lower
26 bound even though had I been able quantify those factors, that might well be the case. I
27 have recommended the lower end of the range because as a general matter, XM and
28 Sirius appear to outperform the recording labels and the PSS with respect to these factors.
29 As one obvious example, the importance of airplay could lead competing record labels to
30 pay compensation to the services to encourage sound recording performances, not the
31 reverse.

1 It is certainly possible that there are reasons why my estimates understate the
2 “true” SRPR rate. For example, it’s possible that the amortization schedules for the up-
3 front content payments by XM and Sirius are excessive, but I have no reason to believe
4 that that would be the case. It’s also possible that a refined study would better reveal
5 subscriber valuation of the music and non-music programming, and in particular reveal
6 that I have overstated the importance of non-music programming. But based on my
7 analysis here, I have no reason to believe that such a study would contradict my
8 conclusions and in fact could indicate a greater significance to non-music programming
9 than I have assumed. As a final example, it is possible that I have understated the
10 likelihood that listening to satellite radio displaces CD and download sales, but that too
11 seems unlikely based on my previous discussion.

12 In short, while there are certainly assumptions embedded within my analysis that
13 could result in an understatement of the rate, I conclude on balance that given the data
14 available, my approach more likely than not overstates that rate.

Appendix

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This Appendix describes the particular line items in the data provided to me by XM and by Sirius, and their categorization as hand-off provider costs and subscriber distribution and acquisition costs. Sirius and XM each reviewed the categorization of these various line items.

*Assignment of XM Costs*⁹⁷

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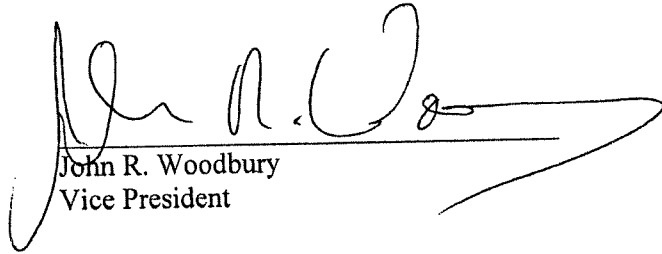
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Certification

I have personal knowledge of the facts in this testimony and the forgoing is true and correct to the best of my understanding.

Dated: Washington D.C.

October 30, 2006



John R. Woodbury
Vice President