Before the
UNITED STATES COPYRIGHT ROYALTY JUDGES
THE LIBRARY OF CONGRESS
Washington, D.C.

In re	)
	)
	)
DETERMINATION OF ROYALTY	) **Docket No. 14-CRB-0001-WR (2016-2020)**
RATES AND TERMS FOR	)
EPHEMERAL RECORDING AND	)
DIGITAL PERFORMANCE OF	)
SOUND RECORDINGS (*WEB IV*)	)
	)

WRITTEN DIRECT TESTIMONY OF TIMOTHY WESTERGREN

(On behalf of Pandora Media, Inc.)

Introduction

1.   My name is Tim Westergren. I am the Founder of Pandora Media, Inc. ("Pandora" or "the Company"). I also sit on Pandora's Board of Directors. The primary focus of my current role at Pandora is guiding the overall strategy and vision for the Company. I regularly work with technology partners, distribution partners, advertisers, and investors to help ensure that Pandora continues to grow and realize our mission of unleashing the power of music to support artists and provide a wonderful music listening experience for our audience. I frequently travel across the United States to promote Pandora, connect with Pandora listeners, and refine the strategy for Pandora's future.

2.   I graduated from Stanford University in 1988 with a degree in political science. While at Stanford, I also studied music theory, composition, and recording arts at Stanford's Center for Computer Research in Music and Acoustics. I am a life-long musician and trained jazz pianist. I have more than twenty years of experience in the music industry in areas ranging from production and audio engineering to film scoring and live performance.

3.   As this is the first proceeding before the Copyright Royalty Board ("CRB") in which Pandora has participated, I submit this testimony to describe for the Copyright Royalty Judges the founding of Pandora and some key milestones in its early history, including the invention of the Music Genome Project ("MGP"), the patented music recommendation tool that forms the core of Pandora's service. Perhaps more importantly, I submit this testimony to elucidate the guiding principle that drove Pandora's creation and subsequent success: to devise a personalized Internet radio platform that exposes listeners to music they will love, and gives artists the opportunity to have their music discovered by fans who might not otherwise have learned about it. It is a deeply held, personal passion of mine, and one to which Pandora has been committed from its inception. It is this commitment to creating a symbiotic relationship between listeners and artists, combined with our hard work and ingenuity in developing a truly unique product, that has made us the leader in Internet radio in the United States today.

The Development of the Music Genome Project

4.   After college, following years of practice, composing and performing, I formed a rock band called Yellowwood Junction, for which I wrote original songs and played keyboards. Our band released a record and toured the Pacific Northwest, but we struggled to make ends meet. I eventually realized that it was unlikely that I would be able to support myself as a member of the band, so I explored other avenues and began to compose soundtracks for commercials and small independent films.

5.   During my work as a film composer, I found that many directors lacked the vocabulary or frame of reference to articulate the type of music they wanted for their films. To help solve this problem, I developed a form of musical interview that allowed me to identify the preferences of a given director in musicological terms by letting the directors listen to certain

songs and then provide their feedback. I translated that feedback into musicological information, which I then used to compose music that reflected their preferences.

6.   As I became increasingly proficient at mapping taste in this way, I came up with the idea of creating a taxonomy for music recommendation. Basically, the vision was to use the Internet as a platform to deliver a smart recommendation service that could help listeners discover music that they would love, but not through the typical "people who bought this also bought that" format of other collaborative filtering-based services, which are essentially popularity contests that favor already-established artists. Rather, this method would be based on musical similarity, without regard to popularity – a level playing field for all music. My idea was that once a song's characteristics (or "genes") were mapped, and expressed as numerical values, the recommendation tool could use mathematical algorithms to identify other songs with similar musical "DNA" to those a user already knew and liked. This idea grew into what is now known as the Music Genome Project, which is a completely popularity-blind method of making music recommendations.

7.   In 2000, I partnered with Will Glaser and Jon Kraft to start Savage Beast Technologies ("Savage Beast"), the company that would later become Pandora. I was in charge of the musical taxonomy, the lynchpin of Savage Beast's product. Shortly after founding Savage Beast, I hired Dr. Nolan Gasser, a musicologist from Stanford, to help develop and refine the MGP. Dr. Gasser and I developed the "pop/rock" "genome," which we then further refined into five separate genomes: Pop/Rock, Jazz, Hip-Hop/Electronica, World Music, and Classical. These genomes formed the taxonomical structure subsequently used to map each genre of music for the MGP.

8.   Each genome contained a set of hundreds of individual "genes" or traits typically present in that genre of music, including very granular details on instrumentation, tempo, form, melody, harmonic structure and lyrical content of the works. We also developed a standardized process of analyzing each recording (listening and assigning a score to each gene based on its role in the work), and trained a team of music analysts to begin building the MGP's musical catalog. The first entry into the MGP was an analysis of the musicological traits that make up ABBA's "Dancing Queen," which was completed on pencil and paper and subsequently entered into an Excel spreadsheet.

Savage Beast Technologies and the Transition to Internet Radio

9.   Originally, Savage Beast's business plan was to license the MGP technology as a recommendation tool to other companies. As an independent musician, I was very interested in the problem of how to connect artists with potential listeners. The Internet created an environment where every musician could have broad distribution and direct access to listeners, but the volume of available content made navigation and discovery of new music a big problem for listeners. I saw the MGP as a way to solve that problem by helping to introduce listeners to new songs and artists who they might otherwise not have encountered, based on what they already liked.

10.   Our initial strategy led us to market the MGP as a tool that music retailers and music websites could use to drive new music sales and consumption. Savage Beast's first product was a set of web tools that allowed customers to integrate our system into their websites through application programming interfaces ("APIs"). We also developed software for Internet-enabled kiosks located in "brick-and-mortar" retailers; customers could listen to music at these kiosks, and, with the assistance of the MGP, discover new music that shared characteristics of

the songs they enjoyed. We marketed this technology to large music retailers such as Tower Records, Best Buy, and Borders. These brick-and-mortar retailers used the software via web-enabled kiosks to promote music sales. According to our retail partners at the time, these systems had a demonstrated success rate: for example, Borders informed us that its use of kiosks resulted in a 15% "lift" rate (*i.e.*, stores that used the kiosks sold 15% more music than stores that did not).

11.	Between 2000 and 2003, Savage Beast struggled financially. The CD market was on the decline, Internet portals and retailers were struggling, and retail stores were increasingly unwilling or unable to invest in listening kiosks. We soon exhausted our initial investment and resorted to salary deferral, as well as the founding team taking on substantial personal debt to keep the business alive.

12.	In 2004, after literally hundreds of pitches to investors, Savage Beast finally raised a second round of financing from a consortium of venture capital firms. With those funds, we paid back our employees, who had been working without pay for some time, and hired a talented new executive team. Together, we began the process of considering strategic options for the future of the business.

13.	Surveying the digital music landscape, we began to wonder whether the company's most valuable asset – the MGP – might be better employed outside the music retail business. In September 2004, we put together a presentation deck of potential new strategies, including a page, well-known among long-time Pandora employees, with a single, simple line: "one-click custom radio."

14.	We recognized that throughout the digital transition, radio had remained a very robust business, and that radio listening was increasingly shifting to the Internet. Although other

companies were already operating in the online radio space at that time, and were growing,[1] we felt that Savage Beast could leverage its core technology to develop a radio product that was significantly simpler and easier to use, and could create far more compelling and personalized song selections. We also believed that transitioning to radio would stay true to the company's core purpose of connecting listeners with new music while helping artists find their audiences and earn income from the use of their music.

15.   Savage Beast made the decision to abandon the business-to-business retail strategy it had been pursuing and shift to a consumer-based Internet radio model. We repurposed the recommendation technology into a playlist engine, renamed the company Pandora Media, and set about creating a consumer-facing product and brand.

16.   In building the new product, we modeled Pandora on the best of traditional radio: a highly promotional form of music consumption that drove discovery, which led to further paid consumption through concerts and record sales, to the benefit of the entire music ecosystem. Pandora also had at least one major advantage over terrestrial radio: using the MGP, we could introduce listeners to a broader range of songs and artists they did not previously know, artists that rarely, if ever, received airplay on terrestrial radio. Pandora could bring invaluable exposure to talented, but otherwise little-known, artists. In short, our mission was to connect artists with the audience they deserved – a role we felt was not being adequately filled by radio of any kind. Our listeners frequently send us feedback that this is precisely their experience when they listen to Pandora.

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[1] By 2005, tech giants like America Online and Yahoo! had entered the Internet radio market with AOL Music / Spinner.com and Launchcast, respectively, and Microsoft's Internet radio product already had fairly substantial audiences. Many terrestrial radio stations were also simulcasting their over-the-air programming through branded websites.

17.   In addition to providing the invaluable service of connecting audiences and artists, we set out to build a legal business that would, through a delightful listening experience and the payment of royalties, offer a constructive alternative to piracy in the digital music space, thereby further supporting a healthy music ecosystem.

18.   Pandora Radio launched in the fall of 2005. We began with a subscription model that allowed for ten free listening hours, after which users were required to subscribe at a rate of $36 per year. That model proved to be flawed, as listeners were generally unwilling to pay for the service. Instead, they would listen to the free ten hours and then never subscribe. Recognizing this reality of consumer behavior, in November 2005 we launched a free, ad-supported version of Pandora Radio and began to hire a sales team to sell advertising. (Mike Herring, Pandora's Chief Financial Officer, will separately explain Pandora's contribution to creating, from the ground up, a dynamic and growing audio advertising market for Internet radio.)

19.   The tenacity we demonstrated in surviving years of serious economic hardship, and our ability to seize a new opportunity through innovation and creativity, have been rewarded with a very successful consumer product that has grown almost entirely by word of mouth. It is personally gratifying to see Pandora fill such an enormous unmet market appetite for personalized Internet radio. As of June 2014, some 77 million Americans (nearly one out of every three Americans over the age of 13) tuned into Pandora on its various platforms for an average of ███ hours per month. Demand for our service comes not only from our listeners. Pandora receives thousands of monthly submissions directly from artists and record labels looking to be played on Pandora in order gain a wider audience for their music; approximately ███████ tracks were submitted to Pandora in 2013 alone.

20.   We continue to invest heavily in the music classification "engine" – the MGP – that lies at the heart of our service offering. The database that Pandora started with has expanded to include approximately ▬▬▬▬▬ analyzed tracks; Pandora now streams more than 1.5 billion listener hours each month and plays songs from more than 120,000 artists each month. The vast majority – some 80% – of these artists are independent, working musicians whose recordings receive no airplay at all on terrestrial radio.

21.   As witnessed by the direct artist feedback below, as well as objective sales data discussed in the accompanying testimony of Stephan McBride, we are without question promotional of record sales. In addition, this year, we will pay more than ▬▬▬▬▬ in statutory royalties to SoundExchange for the benefit of record labels and artists, both featured and non-featured.

22.   Furthermore, Pandora is now actively developing the release of a set of features that will allow musicians to communicate with and activate their fans on Pandora. More than 80% of the top spinning musicians on Pandora have more listeners that have created a station using their name than they have Twitter followers.[2] We understand these listeners' musical preferences, we know their geographic location, and we can communicate with them. The potential of this platform to provide marketing support for working musicians, at this scale, is unprecedented. Arguably, the value this could bring recording artists in concert revenue, commerce, merchandise and other forms of patronage could dwarf the revenue from royalties.

23.   Despite Pandora's dramatic success in the nearly ten years since its launch, it should be borne in mind that the Company has endured and continues to endure significant economic challenges. Indeed, despite our years of innovation and enormous investments in both

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[2] For example, ▬▬▬▬▬ Pandora stations have been seeded with Jason Aldean's name, whereas Jason Aldean has 2,380,000 Twitter followers. Similarly the band Rusted Root has been the seed for ▬▬▬▬ Pandora stations, while Rusted Root has only 10,700 Twitter followers.

our intellectual property and in developing the growing Internet-radio audio advertising market, Pandora has yet to make an annual profit. As further described in Mr. Herring's accompanying testimony, Pandora's payments to the record industry under its existing Section 112 and 114 statutory licenses have, to date, constituted a disproportionate and, in Pandora's view, unreasonable, percentage of Pandora's overall revenues that, if permitted to continue at such levels, will severely impede Pandora's ability to continue to fulfill the market's demand for our service, and to invest in the kind of software capabilities and advertising possibilities that could drive substantial value to musicians.

Pandora's Intellectual Property and Playlist Technology

The Music Genome Project Today

24.   Today, the MGP continues to be the heart of Pandora, and is the key feature that differentiates our service from those of our competitors in the personalized radio space.[3] The MGP that exists today represents an enormous and continuing investment in software, data, infrastructure, and content management. While it retains much of the fundamental architecture and algorithms that Will Glaser, Dr. Gasser and I developed back in 2000, we have spent, and continue to spend, significant resources to continue to develop it. Unlike some of Pandora's competitors (whose custom radio products incorporate fully computer-driven song selection models), the MGP coding process relies extensively on input from expert music curators and analysts. Indeed, Pandora has experimented in the past with such exclusively computer-driven tools, but was not satisfied with the results it obtained. In short, Pandora determined that the automated tools that are currently available cannot grasp the same musical subtleties as a trained

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[3] Indeed, as Simon Fleming-Wood explains in more detail in his testimony, Pandora's music recommendation tool is starkly different from interactive music services, which make all songs in their database available for search and on-demand listening. For this reason, we do not consider on-demand services to be our fundamental competition.

human ear, and are equally unable to effectively surface all the lesser-known music to which popularity-based algorithms are inherently blind.

25.   For songs to be included in the MGP, Pandora's music curation team first selects the new music to be incorporated. The team spends significant time and resources searching for new music through exhaustive research, chart tracking, as well as comprehensive coverage of a wide range of music publications, blogs, and other forms of commentary and criticism. As noted, Pandora also receives submissions directly from artists and record labels looking to be played on Pandora. When music is submitted for consideration, Pandora's curators make every effort to listen to every song that is submitted. Generally, of the hundreds of submissions Pandora receives each week, roughly ███ of the artists have some tracks that make it into Pandora's system. Some of the artists that have found success on Pandora through this self-submission process include Bronze Radio Return, The Gospel Whiskey Runners, Caravan of Thieves, and Chances End.[4]

26.   Once the curators have deliberately chosen the songs to be included in the MGP, they pass the tracks on to Pandora's team of thirty music analysts, all of whom are musicians with deep academic grounding in music theory.[5] The music analysts then study the song and analyze it according to its component characteristics, or "genetic" parts, to create a musical thumbprint for each song. Depending on the genre, each song will be analyzed along 148 to 450 musicological traits. Each trait represents an identifying element of the song that must be aurally detected and understood by the analyst. Through multiple listens, analysts evaluate each track

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[4] These four acts have enjoyed over ██ performances on Pandora, respectively, since the beginning of 2012.

[5] Pandora has rigorous hiring and training requirements to ensure maximal integrity of the MGP. Each prospective analyst must pass an exam even to be considered for a music analyst position. Once hired, music analysts in training must review the same song and compare results, and repeat that process until the results are consistent.

according to both sonoric traits (such as tempo, vocal range, and instrumentation) and more stylistic traits (such as blues influence and lyrical quality).

The above chart displays just a portion of the hundreds of elements used to analyze a song. Note that most traits are assigned a value of 1 to 5 based on the prevalence of the trait in a given song.

27. All of Pandora's music analysts have the training and musicological expertise to be able to identify and describe these musical characteristics and to assess them according to a uniform system, so that songs can be compared to one another on an objective basis. This consistency, which is the result of a rigorous training method developed by Pandora, ensures the kind of accurate data that can be input into the mathematical algorithm that underlies the MGP. This analysis takes roughly 15 minutes for a simple pop song, and far more for more complex music, such as classical symphonies. Our team of music analysts is currently analyzing

approximately ▮▮▮▮ songs per month. Over the last fourteen years since the MGP was

invented, our music analysts have devoted as much as ▮▮▮▮▮ hours, or the equivalent of about

▮ years, to listening to and cataloging the musicological traits of each song in the Genome.

28.   A short video demonstration of the technical features and capabilities of the MGP

is attached to this testimony as Pandora Exhibit 1.

Creating Playlists

29.   The MGP is the cornerstone of Pandora's playlist system. It forms the

musicological basis for connecting songs. However, the intellectual property of this system has

expanded substantially. Pandora now uses three different components to create playlists from

the songs included in its database: (1) Pandora's proprietary content-based recommender, the

MGP algorithm; (2) collective intelligence; and (3) collaborative filtering. Together, each of

these approaches allows us to create the best possible playlist for our listeners in a radio-like

"lean back" listening experience.

30.   **The Music Genome Project Algorithm.** The MGP algorithm uses the musical

content of songs to determine matches based on objective data. In short, the MGP algorithm

utilizes data compiled as part of the MGP to find songs with similar musical thumbprints or

"DNA." These thumbprints of analyzed tracks are compared using patented technology

developed by Pandora to identify songs with the greatest similarity across the traits. In brief, if a

listener selects an artist or genre to "seed" a station (a process explained more fully in the

testimony of Simon Fleming-Wood), the MGP's patented song-matching technology identifies

songs that share similar characteristics with the source song, and will populate a channel of

music for the listener based on those attributes. To identify which songs are similar to the seed,

the MGP uses a nearest-neighbor calculation to determine how geometrically "close" one song is

to another. This calculation begins with an artist, song, or genre and adjusts in real-time with each new input – be it a song or artist. This requires a very high-performance algorithm that can perform highly complex calculations across a vast and constantly growing database, in a fraction of a second. Pandora has spent approximately ███████ hours developing and improving this technology at a cost of more than ██████████ .

31.   The MGP's song-matching technology is entirely blind to the popularity of a given song. In fact, a listener may be presented with tracks sharing similar musical DNA that are from disparate time periods, relatively unknown artists, or even different genres or cultures. The objective nature of the matching process makes the MGP a uniquely effective tool in helping listeners to discover new music. For example, if a listener seeds a station with the 80s band Journey, they may be introduced to the otherwise little-known band Orion the Hunter, which musicologically is a close match to Journey in the MGP.

32.   The MGP algorithm is also the best available methodology to effectively address the "cold-start" problem – the issue that arises when new songs are used to start stations with no information about their performance history – or similarly, when a new listener begins using the service before anything is known about his or her personal preferences. Most systems will fail dramatically in either of these scenarios, but Pandora can use the MGP algorithm to effectively identify appropriate songs without any data. A music service without the MGP would have to guess whether a new song will "fit" within a listener's playlist; oftentimes, this guessing creates a complete mismatch that can do substantial damage to the listener experience and to the reputation of the service. Or, a new song may only get limited exposure to an artist's existing fan base without exposing the song to a wider audience. Pandora's ability to address the "cold start" problem is a large part of what allowed the service to grow so quickly from the very

beginning. Playlists were good from the start, without requiring time-consuming data input on the part of the listener.

33. **Collective Intelligence.** Pandora's "collective intelligence" strategy uses the feedback provided by its listeners to further refine their playlists and to identify musical trends. Over time, Pandora has collected more than ████████ combined thumbs-up, thumbs-down, and track skips that listeners have provided during their listening experience. Using this data, Pandora can correct instances where the MGP matches two songs with similar traits that, for some reason, do not appeal to the same audience. For example, if Song A is the seed song for a station, and Song B is the closest "relative" identified by the MGP, Pandora will monitor listener responses to Song B. If listener responses are negative, then Pandora may stop playing Song B on stations where Song A is the seed song, even though the MGP might have otherwise determined that Song A and Song B should appeal to the same listener.

34. **Collaborative Filtering.** The third algorithm Pandora employs involves looking at the feedback an individual listener has provided on each of his or her stations to create or improve playlists. After a listener indicates a thumbs-up or down for a song, Pandora relates the listener's individual preferences in favor or disfavor for each of the thumbed songs and uses those preferences to influence the playlists of that listener, as well as other listeners who have similar preferences as expressed through thumbing behaviors. For example, assume Listener A has thumbed-up Song A, and Listener B has thumbed-up both Song A and Song B. It is a statistically reasonable premise that Listener A is likely to enjoy hearing Song B simply because of the relatedness of both Listener A's and Listener B's thumb-up of Song A. This strategy thus develops "cohorts" with shared listening patterns that can improve their collective experience.

As may be obvious, Pandora only uses this algorithm when a listener is thumbing-up or -down songs. For Pandora listeners who do not thumb-up or -down songs, this algorithm is not utilized.

35. **Experimentation.** In addition to these playlist algorithms, Pandora is constantly experimenting with ways to improve the mix of songs presented to listeners. In the ordinary course of business, when there is a new idea for improving playlist quality, that idea will be tested on a small but statistically significant group of listeners. The results are evaluated across 140 different metrics to test listener satisfaction, including whether the listener changed the amount of time he or she spent listening to Pandora, or whether the listener changed the rates at which he or she returned to Pandora to listen. If listeners respond positively, then the improvement that was tested will be rolled out to all Pandora listeners. At any given time, dozens of such experiments are being run simultaneously.

Pandora's Promotion of Artists

36. We are committed to helping artists harness the power of Pandora's Internet radio platform. Artists and listeners alike have provided feedback confirming that we are fulfilling those objectives. As just a few examples of Pandora's positive impact on artists:

- In September 2014, classical artist Chad Lawson wrote to Pandora's curation team after his songs were featured in a Pandora Premieres event to thank Pandora for its role in promoting his music. Lawson said: "Pandora has allowed indie artists such as myself to reach an audience never imaginable. And this would have never . . . happened had it not been for your vision, diligence, and most importantly, love for all things music. . . ." Lawson also noted the impressive fact that his "Chopin Variations hit #1 on iTunes Classical last night and is still sitting pretty. *The album isn't even released yet.*"

- Cello rock band Break of Reality credits Pandora for helping them build a healthy career. In a November 2013 article in Forbes magazine, the band's members were quoted as saying: "Before Pandora, we were a regional group. As soon as

Pandora hit, we were being listened to around the country. That exposure has led to a record and single sales. It's incredible." In fact, although Break of Reality's music is not played at all on terrestrial radio, when their songs were added to Pandora, their sales tripled year-over-year. They have noted that their top streaming tracks on Pandora always correlate to the most successful sales of singles. As one of the band members has remarked, "Coincidence? No way!"

- Bronze Radio Return, an indie band out of Connecticut, has seen spectacular success based largely on the MGP. Their songs are known for having a sound similar to the popular band Mumford & Sons, but before Mumford & Sons released their first album, Bronze Radio Return had very few spins on Pandora and no radio airplay. In approximately mid-2011, as Mumford & Sons became more popular and more Pandora listeners started stations seeded with that band, songs from Bronze Radio Return were picked up on those stations. This year, Bronze Radio Return is scheduled to play major music festivals like Bonaroo, Lollapalooza and Firefly. Below is a chart that illustrates Bronze Radio Return's dramatic improvement in Pandora spins over time:

	BRONZE RADIO RETURN *SPINS/YEAR ON PANDORA + Y/Y GROWTH*	MUMFORD & SONS *ACTIVITIES & HONORS*
2009	▉	
2010	▉▉▉	Feb.: Released first album, *Sigh No More*, in U.S.
2011	▉▉▉	Feb.: Performs at Grammys, named Best New Artist
2012	▉▉▉	Sept.: Released second album, *Babel*
2013	▉▉▉	

- The band All American Rejects, which had several Top 40 hits in the early 2000s and achieved gold and platinum albums, has used Pandora's unique ability to reach listeners in various markets to its advantage. During one visit to Pandora, All American Rejects was presented with data that showed, much to their surprise, that Salt Lake City, Utah, was among the top ten cities in which the band's music was performed on Pandora. Armed with this information, the band booked a show in Salt Lake City on their next tour, and played to a sold-out audience.

- The band The Lacs, which performs "hick-hop" or a form of country-rap music and is signed to the Average Joe's label, recently used Pandora data concerning the geographic distribution of their plays to leverage greater distribution of their albums in Walmart stores. Specifically, The Lacs noted that in addition to the southeast, their music was performing well in Indiana, Ohio, and the Pacific Northwest. Their label used this data in a pitch to Walmart, and succeeded in having their albums carried in nearly half of all Walmart Supercenters nationwide; they have also begun to use similar Pandora data to plan their tours to areas in which they might not otherwise have known they had a fan base.

- Artist Jonny Manak has voiced his support for Pandora, noting that Pandora has been helpful with both his band The Depressives and his solo career, allowing his "recordings [to] reach an audience that would otherwise be unavailable to an unsigned artist. Because of this, I'm selling my music worldwide without label support!"

- Artist Aaron Nudelman has noted: "I'm blown away that my music is being offered and displayed adjacent to musicians I have long admired and worshipped. Now when friends and family listen to Mensclub or my solo recordings on Pandora, they are exposed to many artists they might really dig. My music is part of [a] brand new growing community of listeners and musicians."

- Artist Charlie Karr explained Pandora's effect on not only new releases, but on catalog works: "My previous band officially stopped performing a few years ago, except on rare occasions. Thanks to Pandora, there is renewed interest in our back catalog and we have new fans present every time we do get out and play."

37. And this impact grows in direct proportion to Pandora's scale. Spins on Pandora have been shown to lead to a variety of benefits not only to relatively unknown artists, but to artists of every level of success – from "mega artists" (in our top 10) to "mainstream artists" (top 1,000), and "mid-level artists" (top 5,000). So even artists who have already seen success

through other avenues are exposed to new audiences, and a new and increased revenue stream, as the result of their airplay on Pandora.[6]

38.   This impact will only be amplified as we begin to fully roll out the ████

██. When it comes to marketing, Internet radio has some great advantages over broadcast radio – namely that it is a personalized and connected medium. So this means each listener can be messaged to in a far more relevant and efficient way, and by a far broader range of artists. An emerging rock band can send targeted alerts to their fans in Kansas City announcing an upcoming club date. A singer songwriter can solicit donations from listeners who have thumbed up her music to fund a new album. The possibilities are endless, and we are investing heavily in building that platform. Investing in promotional programs for artists provides benefit both to Pandora and to artists. Programs such as Pandora Premieres, Pandora Presents, and ████ (described in the separate testimony of Simon Fleming-Wood), among others, create great value for musicians, while increasing listener satisfaction and retention, thereby generating greater advertising and subscription revenue for Pandora – revenue that is ultimately shared with the artists. As these programs continue to develop, there is an enormous opportunity to nurture this symbiotic relationship and create economic opportunity for artists and labels, while further enhancing our listeners' love for music. I am very excited and optimistic about what lies ahead.

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[6] In addition to the exposure artists obtain through Pandora's platform, we are also developing new tools and functionality to help artists market and promote their music, and continue to work with the music industry to collaborate on new ways to advance the interests of artists.

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DECLARATION OF TIMOTHY WESTERGREN

I, Timothy Westergren, declare under penalty of perjury that the statements contained in my Written Direct Testimony in the above-captioned proceeding are true and correct to the best of my knowledge, information, and belief. Executed this 6 day of October 2014 in Oakland, California.

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Timothy Westergren