

Before the
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Washington, D.C.

In the Matter of)
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ADJUSTMENT OF RATES AND TERMS FOR)
PREEXISTING SUBSCRIPTION SERVICES)
AND SATELLITE DIGITAL AUDIO RADIO)
SERVICES)

Docket No. 2006-1 CRB DSTRA

TESTIMONY OF

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Recording Industry Association of America (RIAA)

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DIRECT TESTIMONY OF DAVID HUGHES

BACKGROUND AND QUALIFICATIONS

I have spent the majority of my professional career with the Sony Group of companies, including Sony Corporation, Sony Music Entertainment, Inc. (“Sony Music”) and, after its merger with BMG Music, SonyBMG Music Entertainment. I joined Sony Corporation in 1993, working at the company’s corporate headquarters in Tokyo, Japan. During my tenure in Japan I served in a variety of capacities, including in the Product Planning and New Business Development department on a variety of projects and products in the digital arena. I first became involved in the digital distribution of music in September 1996 while at Sony Corporation when I became responsible for developing an overall strategy for Sony Group’s digital distribution of music.

In June 1998, I joined Sony Music to head a newly created department dedicated to the electronic delivery of the company’s music catalog. In 2000, I was named Vice President, Technology Strategies and Electronic Music Distribution (EMD), and in 2002, I was named Vice President, Technology Strategies and Digital Policy. During this time I played a key role in developing opportunities for the secure digital distribution of the company’s audio and video content and was responsible for implementation of various digital rights management, copy protection and counter-piracy technologies. I also represented Sony Music in a wide array of cross-industry technological initiatives including MPEG (“Moving Pictures Experts Group”), SDMI (“Secure Digital Music Initiative”), OMA (“Open Mobile Alliance”), and CMLA (“Content Management License Administrator”). I remained in this position until I left Sony BMG at the end of

February 2005. I then performed consulting work in the music technology space for both Sony BMG and others through my own firm of David Hughes and Associates. Since September 1, 2006, I have been employed as Senior Vice President of Technology for the Recording Industry Association of America (“RIAA”).

In my testimony I draw primarily from my experience at Sony Music, but also from my participation in various industry-wide initiatives and my work with the heads of technology at the major record companies.

TESTIMONY

Over the last seven or eight years, the recording industry has shifted from being based almost entirely on the production and sale of physical goods, such as CDs, to an industry in which the digital production and distribution of sound recordings is becoming increasingly widespread. This transition has not happened automatically. Rather, it has been a time of intense technological innovation in which the record companies and the various digital distribution services have, in a very real sense, partnered — each developing new technologies that work together and that, collectively, are essential to the opening of the new digital markets and to making the new digital media that service them functional.

The move to digital technology and the resulting evolution of electronic distribution constitutes the biggest change the recording industry has undergone since its inception. Indeed, electronic distribution has fundamentally changed numerous aspects of the business, requiring the recording industry to build new technological infrastructures essentially from scratch. At each major record company, highly specialized inter-departmental teams of information technologists, computer and software

specialists, sound engineers and others have spent tens of millions of dollars developing these core infrastructures and they continue to spend tens of millions of dollars annually on new technological projects and development in the digital space. Without these very specialized technical contributions, it is not at all clear to me that the new digital markets would be growing as they are and functioning nearly as smoothly. Indeed, it is not clear to me that they would be functioning at all.

I. Digital Asset Management Systems

Perhaps the most significant technological contribution in this area has been the record companies' development and creation of what are known as Digital Asset Management Systems ("DAMS"). DAMS are combinations of proprietary software and unique network infrastructures developed by the record companies that, among other things, associate each sound recording with a wealth of related data — everything from cover art and liner notes to copyright ownership, attribution credit and royalty information — and synthesize them to make, store and track the digital data that is then fed or otherwise made available in electronic form to the panoply of digital distributors of all types. In turn, of course, these data files are delivered to the consumer as the convenient, high-tech, and high-quality listening experience that is the essence of the digital marketplace.

The creation of these DAMS can best be thought of in two steps. First, the record companies had to create digital or electronic production libraries containing their tens, if not hundreds, of thousands of sound recordings. Second, each electronic sound recording had to be paired with a host of corresponding electronic data, known as "metadata," that

allows for the efficient commercial exploitation of the sound recordings by the entire digital distribution community. Each is described below.

The Digital Production Library

Historically, sound recordings were made on analog magnetic tapes. In order for music to be usable digitally in modern era, these analog tapes, of which there are hundreds of thousands, first had to be converted into digital format. This is known as digital remastering. While the analog conversions first started with the introduction of the compact disc, the process has been active well into the current millennium. This is a complex process whereby each individual analog tape needed to be checked for physical integrity by a qualified sound engineer to minimize the degradation in audio fidelity that naturally and unavoidably occurs over time with analog tapes. The transfer from analog to digital likewise required a number of innovative technical solutions such as heat-treating already degraded analog tapes to allow playback for the digitization process.

As a result of this digitization process, sound recordings were captured digitally, but they still were in physical form, such as on Sony U-matic or “1630” tapes. The next step then was to convert these physical master recordings into pure electronic form — that is, into uncompressed digital files stored on computer servers. This process, which began in earnest around 1999, again required qualified sound engineers and skilled IT specialists to transfer the recordings and, this time, ingest them into a digital production library — a virtual, server-based library that would replace the physical vaults in which record companies previously stored their physical sound recordings.

Metadata Management

In addition to the digital production library, the other critical component of a DAM system is the metadata management process. Metadata is computer code that can be hidden from, or revealed to, the consumer depending on how it is programmed. For purposes of a DAMS, the critical metadata includes everything from artist and title identifying information to graphics (photographs and other artwork), liner notes, song lyrics, recording session information needed for AFM pension obligations, details on various royalty participants, and credit information for both the sound recordings and underlying composition copyrights. The creation and management of this kind of metadata is essential not only for the sophisticated listening experience that consumers expect in the digital space, but also to ensure that financial and other credit information for the use of a sound recording by a distribution service properly flows back to the record companies.

One very current example of the innovation that goes into this type of metadata management was the development by the record companies of the Global Release Identifier or “GRid” system that is just now being implemented. Prior to the digital age, every sound recording was assigned a unique International Standard Recording Code or “ISRC,” much like the International Standard Book Number that is assigned to every print book. As part of the evolution of the digital marketplace, the recording industry realized that the ISRC system was no longer adequate because, in the digital space, a single sound record could be exploited in a variety of digital product offerings. As a result, the recording industry initiated and championed the development and international standardization of the GRid system, and to a large degree created and defined the

technical specifications that enable the GRid system to distinguish between different digital products that, nevertheless, are based on the same sound recording. The GRid system is currently being implemented into various record companies' DAMS in the United States and around the world. Once this innovative technology is ubiquitously deployed, it will further enable the efficient delivery of increasingly complex and innovative digital products in the marketplace.

In many ways, the DAMS that I have been discussing are the foundational backbone of today's market for digital media. Because of the DAMS that the record companies conceptualized, designed and built, the record companies today are able to directly feed and otherwise make available to hundreds of digital distribution services the exciting and innovative digital audio and video products without which there would be no digital marketplace at all.

II. Contributions to Core Technologies Enabling Digital Distribution

The recording industry has also made substantial technical contributions to many of the specific technologies that lie at the heart of many of the digital distribution services' own delivery systems. Indeed, the record companies have played a critical role in defining and developing a range of technical specifications for digital distribution technologies both independently and through their leadership role in various domestic and international standard setting bodies.

One example of our contribution in this regard is in the development of what are known as "CODECs." Digital music files are relatively large computer files on account of the amount of data they must contain. Thus, when music is delivered digitally in an electronic file, the file typically must be "compressed" to make the file size smaller, and

then “decompressed,” to allow the playback once the file has been delivered. (The term CODEC comes from “COmpression-DECompression.”) The challenge with this technology is that, as part of the compression process, some data is by definition lost, and the playback of the decompressed file is thus of lower sound quality than the original uncompressed digital master. I know that Sony Corporation has developed and marketed its own CODEC known as “ATRAC.” Other popular CODECs include MPEG Audio Layer 3 (“MP3”), “MPEG Surround,” AAC and Microsoft’s “WMA.” But it is important to note that the record companies’ technical contribution to the development of CODECs is by no means limited to their own proprietary technologies.

In developing the CODEC known as “MPEG Surround,” for example, the relevant standard setting body was attempting to design a specification that would allow the digital distribution of multi-channel (surround sound) music over normal stereo channels with a very small amount of extra information sent with it to allow the full surround sound experience to be reconstituted by a surround equipped decoder at the receiving end. Absent a surround equipped decoder, however, it was possible that the consumer would receive only an artificially mixed (known as “down mixed”) version of the song, which would have suffered in audio quality and, therefore, would have provided a less than optimal listener experience. In response, the recording industry was instrumental in the ultimate adoption of specifications that would ensure delivery of the original sound mix approved by the recording artist. These specifications, as adopted, now allow the best stereo mix to be heard by stereo users who lack surround sound capability, and the best surround mix by surround sound users.

In addition, third party companies that are designing new CODECs routinely will work closely with a recording industry sponsored “golden ear” in conducting what is known as a critical listening test. A golden ear is a sound engineer with a highly trained ear for detecting slight differences in sound quality or sound degradation that most people cannot hear. By contrast, most CODEC developers are mathematicians or computer engineers — not sound engineers. Thus, CODEC developers will work with a recording industry sponsored golden ear to test the sound quality of the CODEC. This is a critical contribution to the high-fidelity, low bit rate CODECs that are used to enable the digital distribution of sound recordings.

In these ways, the recording industry routinely plays a partnering and often a leadership role in ensuring that the music that is made available in the digital arena remains of the quality that users expect and without which the digital marketplace would be a far less attractive means of receiving music.

III. Contract Management and Royalty Accounting Systems

As part of the transition to digital distribution, the record companies also have invested heavily in technological innovation relating to the “back-end” systems that allow for the tracking and payment of royalties and other payments to artists, publishers, songwriters, producers, AFM, AFTRA, and other parties who have a financial interest in the relevant income streams.

To this end, the record companies have developed highly sophisticated electronic contract management systems to enable the more efficient use of their content. More importantly, they have created high-tech royalty accounting systems to ensure the accurate flow of revenue to the many parties to whom it is owed. Historically, royalty

accounting systems were based primarily on the unit-sale concept. That is, royalties were calculated almost exclusively as a function of the number of physical units of records, tapes or CDs shipped and/or sold. As part of the transition to a digital environment, however, the industry has had to make substantial investments into complex accounting systems capable of effectively calculating royalties and participations from the various new revenue streams — many of which (including those from many subscription services) are not susceptible to the traditional unit-based approach.

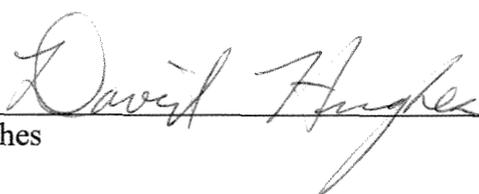
Though it lacks much of the glamour often associated with the music business, these new royalty accounting technologies are in many respects fueling the industry. Without the expertise of the dedicated technologists responsible for these systems, it would be virtually impossible to manage the revenue streams and ensure that each participant in the value chain gets paid appropriately. At the same time that digital sources of revenue become more fragmented and the associated deal structures more complex, artist agreements are also becoming more sophisticated, requiring an added level of flexibility and adaptability from the back-end systems.

All of the record companies either have had to design and build a new royalty structure from the ground up, or implement massive overhauls to their existing systems to accommodate the complexities introduced by the new markets opened by digital distribution. And it takes no great insight to understand that new digital markets would be slower to open absent these critical back-end technologies designed to promote the prompt and accurate distribution of proceeds.

CONCLUSION

The foregoing testimony is intended to give the Copyright Royalty Judges a broad sense of the essential technological contributions that the recording industry has made in the development of the digital marketplace, and in opening new markets and developing new media for creative expression through digital music. The contributions — whether related to making music available in digital form, the core technologies necessary to enable the various channels of digital distribution, or the business systems necessary to process the revenue streams from copyright users — are essential to the proper functioning of the digital music space.

I declare under penalty of perjury that the foregoing testimony is true and correct to the best of my knowledge and belief.



David Hughes

Date: 10/28/06