Before the
COPYRIGHT ROYALTY BOARD
in the Library of Congress
Washington, D.C. 20559

In re	)	
	)	
Notice of Proposed Rulemaking	)	RM 2008-7
	)	
NOTICE AND RECORDKEEPING FOR USE OF	)	
SOUND RECORDINGS UNDER STATUTORY	)	
LICENSE	)	
	)	

COMMENTS OF WUVT

Introduction

WUVT hereby submits comments in the above captioned proceeding. WUVT is a
student-staffed, non-commercial, educational, radio station licensed to Virginia Tech.
WUVT broadcasts on 90.7 FM and simulcasts that programming on the Internet at
www.wuvt.vt.edu. Housed in the student center, the station is operated by students who
are almost all volunteers and four of whom receive small student leadership stipends.
WUVT employs no full-time staff members. WUVT has served the community for more
than 60 years on a tiny budget. WUVT's university support consists of approximately
$9,000 per year from student activity fees and about 1400 square feet of rent-free space
for studios and office. The rest of the station's funding comes from underwriting and
community donations. The station's annual budget ranges from about $26,000 to
$30,000.

We are an interested party because the proposed rule changes will adversely affect the
way in which we operate and deprive internet listeners of WUVT's service. WUVT pays
the annual minimum fee to Soundexchange for webcasting and provides quarterly ATH
reporting. The proposed requirement to report actual performances in a census format in

lieu of ATH would make it impossible for WUVT to comply with the recording obligation.

<u>Summary</u>

1. WUVT, like many other small, educational, non-commercial stations, employs legacy playout methods such as vinyl and tape; and manual logging by DJs.
2. WUVT has found no commercial technology available to create the monthly census reports of actual total performances (ATP) as proposed.
3. WUVT has written its own in-house logging software with manual DJ entry to be able to produce the quarterly reports currently required. Both the lack of precise performance end times and an encoding latency that occurs between the client connection and the streaming software makes it impossible to accurately and fairly produce the precise time-stamping that would be required to report ATP instead of ATH.
4. WUVT calculates that it would take the equivalent of almost 5 continuous years of labor as well as twenty terabytes of storage space to transcribe its library of manual playout media, collected over more than 60 years of the station's history and a significant portion of its content, to digital format.
5. WUVT urges the CRB to take the physical realities of operating a small, non-commercial radio station into account and create an exemption whereby such stations may continue to pay the $500 annual streaming fee and employ quarterly sample ATH reporting.

<u>Legacy playout media at small stations</u>

WUVT's pre-recorded copyrighted air material is contained in a variety of media, including optical disc, vinyl phonograph, magnetic tape, and hard disk. Playout mechanisms for the former three media, including Denon DNC-635 compact disc players, Technics SL1200MkII turntables, and other devices capable of audio signal reproduction via magnetic tape are all manually operated by the station's airstaff. The metadata for program logging and reception device display is entered into a computer

manually. This is discussed in more detail below. Hard disk playout is achieved using open source and in-house developed software, which can export metadata automatically.

WUVT's streaming and client connections

WUVT provides Ogg Vorbis streams for internet listeners from entirely donated equipment from FM listenership. A single server accomplishes both encoding of the audio into three bandwidth varieties and the handling of client connections. The bandwidth varieties are made available as such to accommodate all types of listener connections, including dial-up connections, still prevalent in the immediate rural areas of the served community just outside the station's FM coverage area.   The stream serving software and coding scheme employed are open source.   The server is connected to the Virginia Tech network on a public TCP address on a 10 megabit per second Ethernet port.

Logging of programming techniques

Logging of programming, including those items required by law for internet streaming, is achieved by an advanced in-house-developed software suite tailored to the station's operational norm of a variety of playout methods. Called *QuickTrack* (QT), the software includes a MySQL-driven database, a user interface built on PHP and JAVA, and data handling modules rooted in Python scripts. To date, WUVT is the only operation to use this software suite. The user interface includes text boxes for manual playlist entry where necessary items for internet streaming reporting are typed (featured artist, song title, album title, and marketing label). Internal script functions grab time and date data, as well as a count of clients connected to WUVT's internet stream.   These elements are then passed to the database where they are stored, to the streaming server where they are made available for display to streaming clients and to metadata mechanism specific to FM air operation such as RDS.

By the data collected, WUVT is able to create reports for the traditional composer royalty agencies for annual reports of on air usage, as well as a *snapshot report* of internet stream usage on a per performance basis. By this data, to date, WUVT's internet audio stream has yet to reach even one quarter the excessive usage ATH figure. Calculations have been made of the WUVT streaming system's performance limitations, and these figures have been tested and verified by both controlled and real-world high-usage scenarios. Indeed, results have revealed that the hardware in place could never *functionally* approach one tenth of the excessive usage figure.

Inaccurate data from manual playout methods

With concern to the proposed total census reporting requirement, the manual data entry model, employed by necessity at WUVT, could not achieve accurate usage data. WUVT's DJs are human beings who are playing songs, telling listeners about the music they are playing, giving weather reports, public service announcements, and other information at the same time they are manually logging performances. They can reasonably be expected to and do log the song they played and the time according to the wall clock in front of them but it is impossible to achieve precise, to-the-second entries of start and stop times. The log entry is made as soon as possible at the commencement of a title, but no indication is entered for the end of the performance. Thus, no account is made for non-performance time during program breaks. In addition, DJs are often transitioning music through a board, which further muddies precise end times.

Inaccurate data from stream encoding latency

Errors in the model are compounded by the *variable* timing factor of stream encoding latency and manual playout device operation working in unavoidable temporal disjoint with manual data entry.

The fix for this problem, as proposed by the recording industry's proponents, involves a totally integrated hard disk playout and streaming system, whereby the stream client

connection data is under constant analysis by the same system dictating playout. In order to be completely error-free, this same system must also account for streaming latency, which has been found by WUVT to be a variable figure dependent on a complex load equation. This equation involves at least the number of connections, the distribution of connections across bandwidth varieties, and total bandwidth usage at the "local" network's "head-end" (in the case of Virginia Tech, during peak real world stress, multiple OC-X-class connections to several internet backbones and Virginia's exclusive INET2 educational intranet.), processor load, and possibly other yet unknown factors. But it is not the *network* latency that is of concern here, but rather the load induced *encoding latency* where client connection taxation slows down the transformation of audio information from the input format (be it analog or digital SPDIF, AES/EBU, etc.) to the streaming format. Considering this, even though a client connection to the stream is made during one title, and thus the performance royalty attributed to that work, the actual work decoded and consequently consumed by the client may have occurred further up the playlist. The latent performer is then robbed of his just royalty, which is handed off unfairly to the current artist "on air". The problem is present also upon client disconnection, where it is not necessarily the case that all data sent to the decoder's buffer (and logged by the system as subject to royalty payment on the premise that a digital telegram of the work was realized and consumed on part of the client) is indeed decoded and consumed, and as such warranting royalty.

Though it is not known if such phenomena are unique to WUVT's streaming hardware and methodology, experience suggests that this is not the case. Given this variable nature of streaming latency, it seems questionable that the industry-suggested software and hardware packages, or similar products could produce a *fair and accurate* usage statistic to the industry's desired resolution.

There must be some kind of active feedback on part of the client to render the census royalty idea as valid enough to warrant the expenses involved in its implementation. A positive acknowledgement of receipt *and successful decoding* is thus required, and to date such feedback is absent in the majority, if not the total spectrum of streaming client

technologies. To mandate such a system abolishes the free market approach to streaming platforms enjoyed to date by many broadcasters. This pushes toward the recently suggested Googlelian vision of broadcasting, where traditional uses of RF spectrum are abandoned (in the most recent suggestion, traditional digital television standards throw aside for cognate radio devices aimed at personal information consumption). In this vision, all media is digitally streamed to addressable devices, most of which are mobile and connected to private "public" networks, and thus subject to latency issues yet undiscovered. The merits of such a vision are not contested here, but the precedents for nation-wide (and perhaps global) standard alteration set forth to date cause concern. The cost of mandating such a system falls not on this station then, but on the mandating authority.

Impossible labor and costs to transcribe manual playout methods to digital methods

More specific to WUVT's operation, costs involved in consolidation of all library media to hard disk playout are relatively staggering in hardware, and incalculable in terms of labor involved in transcribing necessary metadata let alone transforming audio information. Fitting the operational model of system redundancy, some twenty terabytes of data storage would be required across several concurrent devices. While it is likely a matter of time before storage costs are reasonable to the operation, at best, given the growth rate of WUVT's library, an investment of nearly 5 consecutive years of labor (volunteer or otherwise) would be required to realize the conversion.

Conclusion

WUVT would have no reasonable or even extraordinary way of complying with the proposed changes in regulation to monthly census reporting of actual total performances. The practical effect of such a requirement would be to force WUVT to discontinue its webstreaming service, thus denying internet listeners both in and out of WUVT's terrestrial broadcast area the service the station provides. WUVT would no longer pay the annual minimum statutory license fee to Soundexchange that it has for several years.

The importance of streaming for the broadcaster lies in the ability to utilize new and innovative methodologies to further the mission of providing public service. Since many listeners within the licensed community make use of and are dependent upon internet streaming of the station for not only entertainment but also information, most notably emergency information, the internet stream has become a vital tool for public service.

WUVT urges the Copyright Royalty Board to preserve access for small, community and educational, non-profit stations to webcasting by exempting stations that pay only the minimum fee from proposed changes from sample ATH to census ATP reporting.

Respectfully submitted,

Jared Thomson, General Manager WUVT
Josh Arritt, former General Manager, WUVT
Kelly Wolff, General Manager, Educational Media
Company at Virginia Tech

On behalf of WUVT
350 Squires Student Center
Blacksburg, VA 24061
Voice: 540-231-9880
Fax: 540-953-5057
wuvtamfm@vt.edu

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