DIGIMARC

Submitter: Tony Rodriguez
Organization: Digimarc Corporation

April 1, 2016

Maria A. Pallante
Register of Copyrights
United States Copyright Office
101 Independence Ave. S.E.
Washington, D.C. 20559

Re: Comments to Section 512 Study: Notice and Request for Public Comment

Dear Ms. Pallante,

Digimarc Corporation specializes in e-book and audiobook copyright infringement detection and enforcement. Digimarc works on behalf of major publishers to locate and prevent infringement of their copyrighted works online.

Digimarc is also a leading developer of digital watermarking technology. Digital watermarking enables the imperceptible addition of information in digital media. Digital watermarking provides a means to identify unique instances of copyrighted works, and to link those works to metadata, such as copyright management information. Digimarc image and audio technology is routinely used to identify, track and report on use of digital image and audio assets.

Digimarc thanks the United States Copyright Office for the opportunity to comment on subjects for which Digimarc has particular expertise.

The section 512 notice-and-takedown process is an important tool for Digimarc's copyright enforcement work on behalf of rights holders. Unfortunately, the process is an increasingly ineffective means to address online infringement in the face of growing digital piracy. Congress could not have anticipated the rapid growth of online piracy when this law was passed in 1998 in a manifestly different technological environment. But the advent and growth of consumer broadband internet and the increased adoption of digital media have rendered the notice-and-takedown process anachronistic and incapable of dealing with the amount of online infringement occurring today.



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Digimarc's commentary is directed to large-scale file-sharing and link-aggregation websites and the difficulties major rights holders encounter in protecting their copyrighted works. Digimarc's comments should not be interpreted as a critique of the effectiveness of section 512's notice-and-takedown process in other contexts. Through this lens, Digimarc provides comments on requests 6-11, 16, 22, 23 and 26.

Digimarc offers four recommendations with its responses to correct the most challenging aspects of the section 512 notice-and-takedown process its encounters.

First, Online Service Providers should develop and enforce meaningful policies to exclude users that repeatedly upload infringing content. Online Service Providers' duty to police users is too ill-defined to have material value, and Online Services Providers capitalize on this ambiguity with opaque and, if the reappearance of infringing content is any indication, seldom-enforced policies that do little to deter or prevent recurring infringement.

Second, Online Service Providers should have standardized takedown notice submission mechanisms to guarantee automated submission by rights holders. Rights holders bear a significant cost to conform to myriad Online Service Provider takedown notice submission formats, which include e-mail and non-standardized web forms. Unnecessarily complicated administrative steps should not be an impediment to rights holders' efforts to enforce their rights. The lack of standardized takedown notice submission format forces costly manual oversight and performance of what should be a simple, automated task.

Third, the counter notification process should be amended to allow rights holders to directly contact counter notification issuers. Infringers can issue template counter notifications with near impunity, since a rights holder's only recourse for an improperly issued counter notification is to take the matter to federal court. Allowing such communication would force counter notification issuers to stand behind their counter notifications and guide rights holders' decision whether to challenge them.

Fourth, digital watermarking technology should be encouraged to prevent the online infringement of copyrighted works. Among its various applications, digital watermarking prevents the reappearance of infringing content on Online Service Provider websites, and automates determining the substantiality of copying in the context of fair use. With the growth of live streaming, the unauthorized use of copyrighted works is proliferating; digital watermarks inserted in content would provide a cost-effective and efficient means for live streaming services to detect and block infringements.

6. How effective is section 512's notice-and-takedown process for addressing online infringement?

The effectiveness of section 512's notice-and-takedown process is determined by the responsiveness of Online Service Providers to takedown notices, the timeliness of their response, and the measures they take to prevent the re-uploading of infringing content. When Online Service Providers are diligent in processing takedown notices, the process is an effective means for removing individual instances of infringing content. However, far too often, Online Service

Providers are slow to respond to takedown notices or ignore them entirely. Even when Online Service Providers process takedown notices diligently, rarely do they employ mechanisms to prevent re-uploading of the same infringing content. And section 512 provides Online Service Providers little incentive to engage in more than bare-minimum compliance efforts.

Section 512 requires Online Service Providers to act "expeditiously" to process takedown notices.[1] But the lack of specificity in the law grants Online Service Providers considerable leeway to facially comply with section 512's safe harbor requirements while still facilitating substantial infringement and reaping the direct financial benefit of selling advertisements displayed on websites linking to or hosting infringing content. In Digimarc's experience, it routinely takes days for takedown notices to be processed. These delays enable considerable infringement of copyrighted works when these works are at their most valuable for rights holders, immediately after their commercial release. Online Service Providers have no incentive to act more quickly, because there is no real threat of liability for not doing so.

The effectiveness of the notice-and-takedown process is also hindered by the substantial number of Online Service Providers that simply ignore takedown notices or argue, incorrectly, that they are *per se* exempt from copyright infringement liability because they do not host the infringing content themselves. In response to a noncompliant Online Service Provider, rights holders' face a Hobson's choice: take the matter to court, an inefficient endeavor whose cost is justified only in the rarest of circumstances, or do nothing. Many rights holders do not have the means or wherewithal to pursue their rights in court, leaving them powerless to prevent ongoing infringement by noncompliant Online Service Providers.

Section 512 also does little to prevent re-uploading of infringing content that has already been the subject of a takedown notice issued to the Online Service Provider hosting that content. The law does require Online Service Providers to develop and enforce repeat infringer policies—though without defining what those must include—but says nothing of Online Service Providers preventing other users from re-uploading infringing content already targeted by prior takedown notices.

As demonstrated in the tables below, Digimarc routinely locates and verifies the same infringing content on the same Online Service Provider website hundreds and even thousands of times, despite issuing takedown notices for each infringement.

[1] 17 U.S.C. § 512(c)(1)(A)(iii).

Top Five Trade Titles for US Publisher I
Site: Popular file sharing website
Date Range: 2013-2015

| Title | Verified Infringements on Site |
|---|---|
| Publisher I Bestselling Trade Title 1 | 2487 |
| Publisher I Bestselling Trade Title 2 | 949 |
| Publisher I Bestselling Trade Title 3 | 834 |
| Publisher I Bestselling Trade Title 4 | 764 |
| Publisher I Bestselling Trade Title 5 | 723 |

Top Five Trade Titles (including audiobooks) for US Publisher II
Site: Popular video hosting website
Date Range: 2013-2015

| Title | Verified Infringements on Site |
|---|---|
| Publisher II Bestselling Trade Audiobook Title 1 | 6376 |
| Publisher II Bestselling Trade Audiobook Title 2 | 6129 |
| Publisher II Bestselling Trade Audiobook Title 3 | 5283 |
| Publisher II Bestselling Trade Audiobook Title 4 | 4549 |
| Publisher II Bestselling Trade Audiobook Title 5 | 4444 |

These Online Service Providers are technically in compliance with the law if they process takedown notices expeditiously, but at some point it should become apparent to Online Services Providers that rights holders simply do not want their copyrighted works appearing on those sites. Online Service Providers should be required to do more to police the reappearance of infringing content on their sites.

7. How efficient or burdensome is section 512's notice-and-takedown process for addressing online infringement? Is it a workable solution over the long run?

To try and keep up with the magnitude of piracy occurring today, companies like Digimarc that specialize in takedown notice issuance manage the volume by investing in systems to make the notice-and-takedown process more cost-efficient. These systems rely on automated piracy detection and, to the extent possible, automated takedown notice issuance. However, these efficiencies are limited by the overwhelming amount of digital piracy occurring today, and the reality that steps in the takedown issuance process require manual involvement to ensure compliance with section 512(c)(3)(A).

Small rights holders cannot effectively stop online infringement under the current notice-and-takedown regime. Furthermore, the current notice-and-takedown process is not a workable solution for any rights holders in the long run unless all actors—rights holders issuing takedown notices, Online Service Providers processing takedown notices, and users uploading infringing content—are held accountable for their abuse of the process. Section 512 endorses half measures and impractical remedies that do little to stem the tide of digital piracy.

8. In what ways does the process work differently for individuals, small-scale entities, and/or large-scale entities that are sending and/or receiving takedown notices?

As indicated in Digimarc's response to question 7, the notice-and-takedown process is an effective means for large-scale entities to stop individual instances of online infringement, but the effectiveness is offset by the frequency with which infringing content is re-uploaded, whether to the same Online Service Provider or others. Large-scale entities willing to invest in a robust copyright infringement enforcement program find themselves engaged in what has become a clichéd criticism of the effectiveness of the notice-and-takedown process, an endless game of Whac-A-Mole.

For the most part, small-scale entities and individuals engaging in section 512 enforcement are fighting a losing battle because they cannot actively police Online Service Providers for the reappearance of infringing content. And "go to court" is not a practical solution for small-scale entities and individuals except in response to the most narrowly distributed infringing content, because otherwise there can be no assurance that removing the content from one website will prevent its reintroduction on another.

Implementation of the changes suggested in Digimarc's comments would result in a reduction in re-uploading of infringing content. This would allow rights holders to focus resources on unique instances of infringement and have a more tangible impact on the overall availability of infringing content.

9. Please address the role of both "human" and automated notice-and-takedown processes under section 512, including their respective feasibility, benefits, and limitations.

Human and automated processes both play an important role in the notice-and-takedown process. Unfortunately, steps that should be automated frequently must be performed by humans due to Online Service Provider-imposed inefficiencies that add to the cost of section 512 enforcement. For example, Online Service Providers are free to dictate how they accept takedown notices, and acceptance formats vary, including in ways that preclude the bulk issuance of notices, such as mandating that CAPTCHAs be solved. Also, some Online Service Providers require takedown notice issuers to create accounts with the Online Service Provider. These are significant hurdles to rights holders efficiently enforcing their rights.

Some steps are unavoidably human processes, such as consideration of fair use. Recent changes in the law, such as the Ninth Circuit Court of Appeals' decision in *Lenz v. Universal Music Corp.*,[2] and commercial pushback, such as Google's pledge to defend YouTube users with a viable fair use defense,[3] have placed more emphasis on the need to scrutinize potentially infringing content for fair use. Digimarc's service employs human verification that addresses this concern that certain instances of use may require human judgment.

[2] 801 F.3d 1126 (9th Cir. 2015), *amended*, Nos. 13-16106, 13-16107 (9th Cir. Mar. 17, 2016).
[3] *See* http://googlepublicpolicy.blogspot.com/2015/11/a-step-toward-protecting-fair-use-on.html.

However, it is important not to conflate human verification in this context with the unnecessary insertion of human input in the submission of the take down notice itself. The latter only increases the burden on the rights holder in the submission process with no corresponding benefit in the process of assessing whether a use is infringing.

Moreover, the utility of automated processes is being hampered by technological impediments to discovering infringing content online such as data scraping limits and robot exclusions. Online Service Providers who have not implemented proactive filtering should at least relax these crawl limitations in order for rights holders to effectively monitor their content. Moreover, where works have been marked with copyright management information in the form of digital watermarks, the Online Service Provider should either filter works using digital watermark detection or not bar third party services from crawling for the purpose of detecting this copyright management information as noted below.

The Copyright Office should do more to enable automated enforcement. Standardization of takedown notice submission formats in particular would enable increased automation. Online Service Providers should accept notices sent to a published email address in a standard format or through a publicly available web form with standard fields, and not complicate the submission process with sign-up forms, CAPTCHAs, and other steps requiring manual completion.

The Copyright Office should also consider the establishment of a takedown notice clearinghouse to standardize and streamline the issuance of notices to Online Service Providers and to ease Online Service Providers' acceptance and processing of those notices.

The burden of human involvement in the assessment of whether a use is infringing could also be reduced by the adoption of digital watermarking as a copyright management tool. Digital watermarking is an efficient and reliable means to identify works because it entails the explicit encoding of unique codes within works. These codes enable automated processes that could be implemented by Online Service Providers and third party services to detect works and access indexed copyright management information associated with those works. The Digital Millennium Copyright Act provides for the protection of copyright management information in section 1202. The Copyright Office should promulgate rules requiring Online Service Providers to either provide tools to detect such copyright information or enable third party services to crawl their sites to detect it. At a minimum, a rule requiring detection of such copyright management information should be required to bar repeat infringement.

Further, the arrangement of embedded codes throughout works could enable automated processes to measure the extent of copying by detecting a continuous sequence of codes within a work, which would be particularly valuable in the context of assessing fair use. This approach is more efficient than pattern matching, sometimes referred to as "fingerprinting," because it does not require matching works against a vast database of reference fingerprints. Instead, it provides a more deterministic form of identification because unique codes are extracted with various forms of error correction and error detection, offering an extremely low false positive rate in a computationally efficient manner. This approach would obviate the need for the error prone, probabilistic matching provided by fingerprinting, and the need to maintain and distribute an

ever-growing database of reference fingerprints. Watermarking also enables the unique identification of different works, which is not possible with fingerprinting.

10. Does the notice-and-takedown process sufficiently address the reappearance of infringing material previously removed by a service provider in response to a notice? If not, what should be done to address this concern?

Section 512's notice-and-takedown process fails to deter or prevent the reappearance of infringing content already removed by an Online Service Provider because Online Service Providers have no duty to police their services for the reappearance of that same content.

Digital watermarking could be used to detect the reappearance of infringing content by the detection of unique codes in that content. When registered in a local or shared database, those unique codes could be used to log detection events, enabling the automated discovery of repeat infringement. An Online Service Provider could subsequently use the log of detection events to automatically remove infringing files from its servers, avoiding the need for rights holders to send takedown notices altogether.

11. Are there technologies or processes that would improve the efficiency and/or effectiveness of the notice-and-takedown process?

Digital watermarking could be used to improve the efficiency of detecting infringements and reduce the overhead of manual review in fair use cases. Digital watermarking encodes information in a work. That allows an automated system to identify the work and access a database to ascertain the nature of the work. This information may be encoded in sequential fashion to facilitate reliable measurement of the extent of copying. Thus, digital watermarking, while not dispositive of fair use, would facilitate automated monitoring to detect copying and flag circumstances where fair use is or is not likely due to the nature of the work and the extent of copying.

In addition, digital watermarks are currently encoded in most broadcast television and FM radio broadcasts, providing a clear indication as to the source. Using watermarks to learn the nature of the work and the extent of copying would impose no material costs on Online Service Providers.

*Counter Notifications*

16. How effective is the counter notification process for addressing false and mistaken assertions of infringement?

The counter notification process is effective for having content reinstated, but in Digimarc's experience, this is more reflective of the unfeasibility of challenging a bad faith counter notification than it is a functional process. The only check on improperly issued counter notifications is the threat of a federal lawsuit, which is an untenable remedy for most rights holders to pursue, and of questionable utility for those who do pursue that path, given the frequency with which infringing content is re-uploaded. And Online Service Providers themselves give counter notifications no scrutiny because they face no liability for complying

with those issued in bad faith, since compliance enables them to continue to benefit financially from hosting or linking to the infringing content. Digimarc recommends that rights holders be able to contact counter notification issuers directly to enable a discussion on the merits of a counter notification. This step would force counter notification issuers to stand behind their counter notifications and guide rights holders' decision whether to challenge them.

*Repeat Infringers*

22. Describe and address the effectiveness of repeat infringer policies as referenced in section 512(i)(1)(A).

Rights holders have no visibility into the repeat infringer policies of most Online Service Providers, so it is difficult to gauge their effectiveness. However, if their effectiveness can be judged by the frequency with which infringing content reappears, repeat infringer policies are not effective at all. This is not surprising. Section 512 does not define the repeat infringer policy requirement with any particularity, and Online Service Providers can avoid accountability by not requiring the creation of a public-facing account to use their services. Thus, Online Service Providers have little incentive to aggressively police their user bases. And this says nothing of the ease with which individuals can obscure their digital identity to avoid existing repeat infringer policies.

23. Is there sufficient clarity in the law as to what constitutes a repeat infringer policy for purposes of section 512's safe harbors? If not, what should be done to address this concern?

There is not enough clarity in the law to determine what constitutes a compliant repeat infringer policy. Section 512 requires the adoption and reasonable implementation of a policy to terminate "repeat infringers" in "appropriate circumstances," but does not define what constitutes a repeat infringer or identify circumstances where "termination" is appropriate.[4] "Repeat infringer" should be defined to mean any user who uploads any item of infringing content more than one time, and "appropriate circumstances" should be removed entirely, because there are no circumstances where repeated infringement should be countenanced. Further, define "termination" of repeat infringers to require more impactful forms of user management, including banning users by IP address.

As explained herein, digital watermarking can address the challenge of detecting repeat infringement. It offers an efficient, automated means for identifying the content as a re-upload of the same content by detecting a unique code within that content.

*Remedies*

26. Is section 512(g)(2)(C), which requires a copyright owner to bring a federal lawsuit within ten business days to keep allegedly infringing work offline—and a counter-notifying party to defend any such lawsuit—a reasonable and effective provision? If not, how might it be improved?

[4] 17 U.S.C. § 512(i)(1)(A).

Section 512(g)(2)(C) is too easily abused by counter notification issuers, and a federal lawsuit is too untenable of a response for rights holders, for the counter notification process to be a fair or effective remedy. Users uploading infringing content face little risk for issuing counter notifications in bad faith, and Online Service Providers themselves have no risk in complying with even the most improperly issued counter notifications. Digimarc frequently encounters template counter notifications without any particularized explanation of why the issuer believes the takedown notice was issued in error, which are blindly processed by Online Service Providers. As indicated earlier, allowing rights holders to directly contact counter notification issuers before filing a suit would efficiently guide rights holders' decision whether to challenge those counter notices.

Conclusion.

By adopting the recommendations in these Comments, the Copyright Office would improve on a number of challenging aspects of the section 512 notice-and-takedown process.

The Copyright Office should define "repeat infringer" to mean any user who uploads any item of infringing content more than one time, and define "termination" of repeat infringers to require more impactful forms of user management, including banning users by IP address.

The Copyright Office should also require standardization of takedown notice submission formats. By requiring Online Service Providers to accept notices in a standard format, such as through a publicly available web form with standard fields, a significant impediment to efficient takedown notice issuance would be removed. In addition, the Copyright Office should allow rights holders to communicate directly with counter notification issuers to reduce the frequency of meritless counter notifications.

Lastly, the Copyright Office should encourage use of digital watermarking to cure the repeat infringer problem and to improve the efficiency of the fair use analysis. Watermarks are already present in broadcast television and FM radio, and as adoption of watermarking grows, repeated infringement of content could automatically be prevented. To advance this goal, require Online Service Providers to either provide tools to detect such watermarks or enable third party services to crawl their sites to the detect the same. Further, using watermark data to gain reliable measurement of the extent of copying would protect both rights holders and those claiming fair use protections.

Digimarc thanks the United States Copyright Office for its consideration of these comments.

Sincerely,

/Tony Rodriguez/
Tony Rodriguez
Executive Vice President, Chief Technology Officer
Digimarc Corporation