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Remote Roundtable  
Suite 206  
Heritage Reporting Corporation  
1220 L Street, N.W.  
Washington, D.C.

Wednesday,  
April 21, 2021

The parties met remotely, pursuant to notice, at  
10:32 a.m.

PARTICIPANTS:

Government Representatives:

REGAN SMITH, General Counsel of the U.S. Copyright  
Office  
KEVIN AMER, U.S. Copyright Office  
STACY CHENEY, National Telecommunications and  
Information Office  
MARK GRAY, U.S. Copyright Office  
BRAD GREENBERG, U.S. Copyright Office  
MELINDA KERN, U.S. Copyright Office  
LUIS ZAMBRANO RAMOS, National Telecommunications  
and Information Administration

Panelists:

MICHAEL AYERS, DVD CCA and AACS LA  
JAY FREEMAN, SaurikIT  
JONATHAN KAUFMAN, Stanford Law School Juelsgaard  
Intellectual Property and Innovation Clinic  
PHIL MALONE, Stanford Law School Juelsgaard  
Intellectual Property and Innovation Clinic  
MORGAN REED, ACT | The App Association  
MITCH STOLTZ, Electronic Frontier Foundation  
J. MATTHEW WILLIAMS, Joint Creators and Copyright  
Owners  
AARON WILLIAMSON, Software Freedom Conservancy

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Also Present:

BRANDON BUTLER  
WILLIE CADE  
GAY GORDON-BYRNE  
SINA KHANIFAR  
KEVIN O'REILLY  
LETICIA REYNOLDS  
PAUL ROBERTS  
MARK SCHAFFER  
JESSE SPIEGEL



1 to participate, you can use maybe the Zoom "Raise  
2 Hand" feature, we found has been the most reliable.  
3 But, if for some reason it's not working for you, you  
4 can raise your hand in real life. Anyone watching or  
5 participating can use the chat or Q&A function if  
6 there's technical difficulties, and someone from the  
7 Copyright Office will reach out to assist you.

8 At the end of today's hearing, which is 1:45  
9 Eastern, we're going to have what we're calling an  
10 audience participation session. So there is still  
11 time to sign up if anyone wishes to contribute their  
12 thoughts to any of the classes in this rulemaking, and  
13 we're asking that you limit any comments to about  
14 three minutes. Again, someone from the Copyright  
15 Office will reach out if you put in a request and  
16 provide details with how to participate for that.  
17 Please try to mute yourself when you're not speaking.  
18 I know we are all pros at this by now, but that will  
19 help the court reporter, and making sure not to talk  
20 over others will also assist that.

21 So, to start, I'm going to ask my colleagues  
22 in the Copyright Office to introduce themselves, so  
23 Mr. Amer, Ms. Kern, and then Mr. Greenberg.

24 MR. AMER: Good morning. Kevin Amer, Deputy  
25 General Counsel.

1 MS. KERN: Good morning. Melinda Kern,  
2 Ringer Fellow.

3 MR. GREENBERG: Good morning. Brad  
4 Greenberg, Assistant General Counsel.

5 MS. SMITH: Thank you. Mr. Zambrano Ramos,  
6 could you please introduce yourself?

7 MR. ZAMBRANO RAMOS: Thank you. This is  
8 Luis Zambrano Ramos. I'm a policy analyst in NTIA's  
9 Office of Policy Analysis and Development within the  
10 Department of Commerce. Thank you.

11 MS. SMITH: Thank you. So now we'll go  
12 around and we'll introduce the panelists, first those  
13 who are supporting proposed adjustments. So, Mr.  
14 Freeman, Mr. Stoltz, and Mr. Williamson, if you could  
15 just introduce yourself and identify the organization  
16 that you are here representing if you are representing  
17 an organization.

18 MR. FREEMAN: My name is Jay Freeman. I am  
19 here for SaurikIT, which is my company. We developed  
20 Cydia, which is the alternative to the app store for  
21 Jailbreak and iWest devices, and have been here at  
22 years prior, so I recognize many of your charming  
23 faces today. I also am a member of the group  
24 Exploiters, which developed the jailbreak for the  
25 Google TV. I did not myself participate in that work

1 directly, but I was with everyone as they were working  
2 on it, cheering them along, and saw the process of it.  
3 I also am now in charge of technology at a company  
4 called Orchid Labs, which is building a -- which  
5 raised, in fact, nearly \$50 million to raise a private  
6 placement for the Internet built on top of the  
7 existing Internet that is free of censorship and  
8 surveillance and, therefore, has a strong interest in  
9 network routing devices.

10 MR. STOLTZ: Hi, I'm Mitch Stoltz. I am a  
11 senior staff attorney with the Electronic Frontier  
12 Foundation.

13 MS. SMITH: Mr. Williamson, it looks like  
14 you might be trying to unmute, but just in case -- all  
15 right. We'll come back then to Mr. Williamson, who is  
16 with the Software Freedom Conservancy. Are you able  
17 to unmute or no? All right. So maybe someone on --  
18 we'll either come back to you, but if you need help,  
19 please message to the team.

20 So now there's three panelists who are  
21 participating in opposition to some of the proposed  
22 changes. So please, Mr. Ayers, Mr. Reed, and Mr.  
23 Williams, could you introduce yourself? Oh, now we  
24 have two Mr. Williamsons, so we'll go back to you at  
25 the end if we can.

1           MR. AYERS: Hello. Good morning. My name  
2           is Michael Ayers, and today I'm representing Advanced  
3           Access Content System Licensing Administrator, LLC,  
4           usually referred to as AACS LA, and DVD Copy Control  
5           Association, usually known by DVD CCA.

6           MR. REED: And this is Morgan Reed and I'm  
7           the President of the App Association.

8           MR. WILLIAMS: Matt Williams, Mitchell  
9           Silberberg & Knupp, representing the Joint Creators  
10          and Copyright Owners.

11          MS. SMITH: Okay, thank you. Mr.  
12          Williamson, do you want to see if that fixed the  
13          issues?

14          MR. WILLIAMSON: My apologies. Zoom froze  
15          at an inopportune time. My name is Aaron Williamson.  
16          I'm an independent attorney here representing the  
17          Software Freedom Conservancy.

18          MS. SMITH: Okay, great. So we have various  
19          questions teed up, but I wanted to start by making  
20          sure that we have the right scope of the two requests.  
21          So, as the Copyright Office understands it, the  
22          Software Freedom Conservancy is looking for an  
23          exemption to permit circumvention on firmware and  
24          routers and other networking devices to enable the  
25          installation of alternative firmware, is that correct,

1 Mr. Williamson?

2 MR. WILLIAMSON: That's correct.

3 MS. SMITH: Okay, thank you. And then, with  
4 respect to EFF, I think, Mr. Stoltz, I wanted to make  
5 sure I understand the scope of the request to modify  
6 the smart television exemption because it seems like  
7 the language changed a little bit from the petition to  
8 the reply, and some of the written comments, which  
9 we've all read, indicate that the exemption is not  
10 intending to encompass DVD players, Blu-ray players,  
11 or set-top boxes or gaming consoles. But, you know,  
12 do you want to in your own words just sort of describe  
13 what you're looking for and why it -- if there's  
14 anything you can say about the changes in the written  
15 submission from the initial to the reply comment.

16 MR. STOLTZ: Absolutely. We intended no  
17 change. The exemption is not meant to cover DVD or  
18 Blu-ray players or game consoles. The exemption as we  
19 conceived it was, you know, sort of built around the  
20 paradigmatic examples that we gave in our initial  
21 position, the Roku, the Amazon Fire devices, and the  
22 Apple TV and similar devices. So, in our reply, we  
23 discussed some sort of ways in which we might cabin  
24 that language a little bit more, but the intent is the  
25 same.

1 MS. SMITH: Okay. And, I mean, are you  
2 willing to cabin that language by excluding those  
3 devices that I mentioned? I think what I understood  
4 in the reply was that EFF was saying this encompasses  
5 video streaming devices, and so I think a corollary,  
6 if that's the right understanding, is whether that  
7 phrase is descriptive enough to keep in what you mean  
8 to keep in and keep out where some of the objections  
9 have been raised.

10 MR. STOLTZ: Yes, that is the intent. As we  
11 wrote in our reply, but I can mention it here, I think  
12 what we're -- the way we propose this is devices that  
13 run a variety of applications with a primary purpose  
14 of streaming video from the public Internet for  
15 display on a TV screen and not integrated into other  
16 types of devices, such as video disc players or game  
17 consoles.

18 MS. SMITH: Thank you. Do any -- does  
19 anyone else want to comment as to whether that  
20 clarification is helpful? Or -- Mr. Ayers?

21 MR. AYERS: Thank you. Yeah, I certainly  
22 appreciate the clarification that there's no intent to  
23 cover DVD players, Blu-ray players, and gaming  
24 consoles, which include DVD and Blu-ray drives. I'm  
25 still -- because, certainly, as originally proposed,

1 the language covered quite a -- even if not intended,  
2 kind of a very broad swath of devices, anything that  
3 provided a software application on a screen, which  
4 includes DVD and Blu-ray playback. Those are enabled  
5 by software on devices even if they're not doing  
6 Internet streaming.

7 I remain concerned, though, about the  
8 primary purpose test, especially in the context of  
9 devices with multiple functions, like a game console  
10 or like a Blu-ray player that has streaming ability,  
11 is what exactly is the primary purpose. How is that  
12 going to be determined? And what happens if that  
13 primary purpose arguably evolves over time? A device  
14 with physical playback capability may have been -- may  
15 sort of in the public mind be considered primarily for  
16 that physical media, but over time, as streaming  
17 becomes more popular in the public mind, depending on  
18 whose mind we're looking at here, it may be determined  
19 that this is a multifunction or it's a streaming  
20 device that just happens to play physical discs. So I  
21 do remain concerned about the primary purpose test.

22 MS. SMITH: Thank you. Do you have a sense  
23 whether that is likely to happen in the next three  
24 years, Mr. Amers -- Ayers, with respect to the devices  
25 you're here to discuss?

1           MR. AYERS: I don't know. We can certainly  
2 think about that and get back to you. I think we  
3 already have the situation where a lot of these  
4 devices are considered multipurpose. They're offered  
5 as entertainment devices, not necessarily specifically  
6 as a Blu-ray player. So I think we already have an  
7 element of that to consider today.

8           MS. SMITH: Okay, thank you. I see, Mr.  
9 Stoltz, that you've indicated you wanted to respond,  
10 but I think it might make sense to let Mr. Williams  
11 comment first and then you could respond too. Okay,  
12 go ahead, Mr. Williams.

13          MR. WILLIAMS: Thank you. Yeah, I have  
14 similar concerns to Mr. Ayers. It is quite helpful,  
15 of course, to acknowledge that consoles and Blu-ray  
16 players and cable and satellite set-top boxes should  
17 not be covered, but the language that's put forward in  
18 the reply just doesn't get there, even setting aside  
19 whether there's an issue with jailbreaking, so to  
20 speak, of these other plug-in-type streaming devices.  
21 I mean, for some users of a Blu-ray player, the  
22 primary reason they have it is they have an older  
23 television and they want to watch Netflix or they want  
24 to watch Hulu and they use the Blu-ray player to  
25 access those applications because they don't have a

1 smart TV. And so they may play Blu-rays as well, but  
2 their primary purpose for that device might be for  
3 streaming content.

4 And, for video game consoles, the language  
5 also doesn't work for me because, if you're talking  
6 about a switch, for example, it doesn't have a disc  
7 drive. There's no optical drive. The way the wording  
8 is put forward, it talks about a device that's  
9 designed to display applications on a screen,  
10 including streaming video. I mean, that it's -- the  
11 language is just too broad and could sweep in  
12 consoles.

13 And so it would be great, of course, to say  
14 in some regulation or in the recommendation these  
15 things are definitely not covered. That would give us  
16 some comfort. But, as the marketplace develops, as  
17 these exemptions get renewed over time or even within  
18 the next three years, the way things are progressing,  
19 the language has to be really precise. And I don't  
20 know how to fix it for them. I've thought about it,  
21 but I -- it's a hard line to draw and I don't think  
22 they've been able to draw it so far, and so we're  
23 still very uncomfortable with it.

24 MS. SMITH: Thank you, Mr. Williams. Mr.  
25 Stoltz, would you like to respond to those comments?

1           MR. STOLTZ: Yes. So these are three-year  
2 exemptions and they're based on the record before us  
3 and not the speculative record of what might happen in  
4 three years, which nobody has a crystal ball and  
5 nobody has proposed. What we have right now is really  
6 evident from looking at the website of any major  
7 electronics retailer, and all of them, the major ones  
8 that we've looked at, put streaming players or  
9 streaming boxes in their own category, separate from  
10 DVD and Blu-ray players, separate from game consoles.  
11 Now we have proposed to explicitly exclude those,  
12 regardless of the primary purpose of the device, to  
13 specifically exclude devices that are integrated with  
14 either a disc player or a game console. The -- Yeah,  
15 I'll leave it at there for now. I was just going to  
16 say the other -- no, I'll leave it there for now.  
17 Thank you.

18           MS. SMITH: Okay. Can I ask you one follow-  
19 up question, which is it seems like from the initial  
20 petition to the reply, the word "television" has been  
21 substituted for "screen" and could you address what  
22 was motivating that change? So the existing  
23 regulatory exemption was for a so-called smart  
24 television, you know, which was based on the record in  
25 2015, and we want to understand what's motivating the

1 proposed language change here.

2 MR. STOLS: Just that it could be a computer  
3 monitor.

4 MS. SMITH: And in your understanding, the  
5 same type of devices would connect to the computer  
6 monitor as to the television, is that right, or --

7 MR. STOLS: Yes. Anything that basically  
8 could take an HDMI input.

9 MS. SMITH: Okay, thank you. Now I'm going  
10 to pass the questioning to my colleague, Mr. Amer.

11 MR. AMER: Thank you. So just to sort of  
12 continue on this line, I'm wondering -- I think I'll  
13 start with the opponents. So assuming it's possible  
14 to define the exemption in such a way that is clear  
15 that, you know, it excludes things like video game  
16 consoles and Blu-ray players, and I'm not saying it  
17 necessarily is possible to do that, but if it's  
18 possible to define an exemption that applies to --  
19 that is limited to sort of video streaming devices of  
20 the type that the petitioners have described, do you  
21 have particular concerns about the effect on the  
22 market if the exemption were to cover those types of  
23 devices? Mr. Williams?

24 MR. WILLIAMS: Yeah, thank you. So we do  
25 still have concerns and I think they're substantial

1 concerns. Once these devices are altered, there's a  
2 lot of applications out there that infringe on my  
3 clients' works. And when the devices are tied to a  
4 store, let's say, of the provider of the device, that  
5 provider has some control, some ability to remove  
6 applications once there are problems identified, and  
7 once they are hacked, that might go away.

8 And so we do have concerns about that. We  
9 tried to lay them out in our comments. I recognize  
10 that they're similar to the concerns we've raised for  
11 multiple cycles with respect to other devices and that  
12 the Office has ultimately decided to grant those  
13 proposals. But we wanted to make sure it was clear we  
14 do have concerns and there's a lot of infringement out  
15 there. It's well documented in government documents,  
16 as well as court cases, and so we have a lot of  
17 concerns about it.

18 MR. AMER: Thank you. Mr. Stoltz?

19 MR. STOLTZ: Yeah, thank you. So I think we  
20 can all acknowledge right now that infringement  
21 exists, infringing applications exist. But I wanted  
22 to point out something else that's existed for 11  
23 years now, and that's that we -- there have been  
24 exemptions covering jailbreaking of personal  
25 electronic devices for 11 years now, and they're

1 devices that are in many ways very similar to what  
2 we're proposing here. Most significantly, we've now  
3 had an exception for, I believe it's six years, for  
4 smart TVs. What we're proposing is a slightly  
5 expanded class, a narrow expansion that covers not  
6 only smart TVs where the hardware is integrated into  
7 the display but where the streaming hardware is  
8 separated out into a box or stick but otherwise  
9 functionally equivalent.

10 And here's what we know about those: They  
11 have not significantly contributed to infringement, as  
12 the Office has recognized in past cycles, and that's  
13 the relevant question, right? The relevant question  
14 is not, do there exist apps that assist infringements?  
15 We know that those exist. The question is, does  
16 granting this exception so that law-abiding people can  
17 add and remove functionality from the devices that  
18 they own contributes in any material way to  
19 infringement? And there is no evidence of that in the  
20 record.

21 MR. AMER: Thank you. Mr. Reed?

22 MR. REED: I think there are three parts of  
23 this. The first is that Mr. Stoltz was using the term  
24 "no significant increase in infringement." That's not  
25 the standard that the Copyright Office uses.

1           The second part of this that's worth noting  
2           is we're not in a situation where there isn't an  
3           alternative. There are plenty of alternatives. You  
4           can throw Linux on a USB stick and plug it into your  
5           TV and there's plenty of open source streaming  
6           capability that you can do without hacking a device  
7           that someone else has put copyrighted material on that  
8           they want to protect and profit off of. So the market  
9           hasn't failed. There is the availability of this  
10          technology widely available in other places.

11           And then the third point, and I think we've  
12          kind of danced around it, is, Kevin, you kind of got  
13          to it, which is, at a certain point, it's becoming  
14          indistinguishable. Anything with a USB port in it is  
15          essentially capable of running what would have  
16          amounted to a super computer 20 years ago. So the  
17          idea of transporting it from the TV to the stick is  
18          not a minor expansion. It's an enormous expansion  
19          because it's essentially the ability to change  
20          anything that plugs into your screen and jailbreak it.

21           So I think that basically that's not the  
22          standard. We haven't met -- it's a much broader  
23          expansion than to describe it as merely going from  
24          something installed to something not. And I think  
25          right now we're not limited in the market.

1           And just very quickly to go back to an  
2 earlier point, Mr. Stoltz was saying, well, they  
3 divide these Blu-ray players from boxes that stream.  
4 While he was talking, I just did a quick Google  
5 search. So the Sony S3700 is \$78 with Wi-Fi and USB  
6 installed and its top picture that it shows is a Blu-  
7 ray player. You see the picture of the Blu-ray  
8 player. The next screen is Netflix. So Sony is  
9 marketing these products, and I've got a bunch of them  
10 up here, with they'll play your disc, but they'll  
11 stream your Netflix. So I think this idea that  
12 there's some bright wall of separation between the box  
13 that plays the disc and the box that streams your  
14 content is no longer the reality we live in. And you  
15 can buy it for 78 bucks. So it's not even a -- it's  
16 not even a price competition issue. Thank you.

17           MS. SMITH: Can I ask one question? It  
18 sounds like you're disagreeing, Mr. Reed, with Mr.  
19 Stoltz's characterization of the expansion to devices  
20 that are otherwise functionally equivalent to the  
21 current exemption for smart televisions, where the  
22 functionality is embedded in the television.

23           MR. REED: Right.

24           MS. SMITH: Can you just elaborate upon what  
25 you see as where those differences are from the

1 technological perspective or other functional  
2 perspectives based on how they define it?

3 MR. REED: Well, as I said, you hit on it  
4 earlier, Regan, when you were talking about screen  
5 versus TV and how do we define television. The  
6 reality is, is that anything with a screen that I can  
7 plug a USB port into or an HDMI -- HDMI has its own  
8 separate capabilities -- but, if I'm plugging a USB  
9 stick into it or have access to its display  
10 capabilities through that, I'm essentially, the world  
11 is my oyster. I can do almost anything I'd want to  
12 do.

13 So I think that limiting it or trying to  
14 create this artificial construct of its preponderance  
15 of its capability is to stream and we've moved it from  
16 inside the TV to a stick outside the TV, once you move  
17 it outside that TV and you've moved into that format,  
18 you've really opened the door to -- I can't even --  
19 basically, it's the Internet of things, right? It's a  
20 door-opener for everything. So it's not limited  
21 because it's not just something that came inside of a  
22 TV and we're modifying it.

23 Earlier, Matt gave a great example where he  
24 said, you know, you have an older TV and you want to  
25 plug in your Blu-ray box and that's how you're going

1 to get your Netflix. So I think that if you think  
2 about what that capability is going on, now instead of  
3 a Blu-ray box, I'm doing a Kodi Box. I can do almost  
4 anything a computer would want to do in that case. So  
5 it isn't limited because, once I'm plugged in, I have  
6 access to pretty much everything I need, and it's much  
7 closer to plugging in a full computer. In fact,  
8 arguably, it is.

9 MR. STOLTZ: Could I? If I could respond to  
10 that?

11 MR. AMER: Sure, sure.

12 MR. STOLTZ: I think -- I would hope that we  
13 actually talk about the definition that we proposed  
14 and refined because it is not, in fact, that broad and  
15 it is also, as we've said, focused on the paradigmatic  
16 examples that we've given, the Amazon Fire devices,  
17 the Apple TV, the Roku. Beyond that, again -- so Mr.  
18 Reed mentioned Kodi. Kodi is a lawful product and one  
19 can already run Kodi while taking advantage of the  
20 existing exemptions on a smart phone, on a tablet, on  
21 various other devices. That's -- that is something to  
22 be encouraged.

23 MR. REED: If I could --

24 MR. AMER: Okay. Well, wait, let me just  
25 ask another question here and I think it relates to

1 the same themes. So you can hopefully address --

2 MR. REED: Yeah.

3 MR. AMER: -- your previous comments can  
4 address this. So I know that the opponents cited a  
5 number of cases, for example, where they talked about  
6 various enforcement actions that copyright owners have  
7 pursued against manufacturers of devices, some of  
8 which I guess allow -- involve Kodi, others I guess  
9 have pre-loaded content. I know the Joint Creators  
10 cited the Chip Box case and the Dragon Media case. I  
11 wonder if you could talk about how similar or  
12 different a jailbroken streaming device is compared to  
13 the devices in those cases. Is the dividing line --  
14 is the relevant dividing line based on whether content  
15 is pre-loaded on the device, or should that not be as  
16 relevant?

17 MR. STOLTZ: The relevant dividing line  
18 comes from the law and that law says an open, fully  
19 configurable media player, which one can think of like  
20 a web browser is a lawful product. A player that is  
21 preconfigured to connect to infringing streams is a  
22 form of inducement of copyright infringement. So  
23 those cases that the MPA cited in their papers  
24 concerned, as I understand it, devices that were  
25 preconfigured to connect with infringing streams. A

1 jailbroken Fire Stick or Apple TV is not that. It is  
2 not that until software is added to it that has those  
3 characteristics. Again, the same thing applies on a  
4 cell phone, on a smart phone. The same thing applies  
5 on a tablet. But jailbreaking itself, but for the  
6 prohibition of Section 1201(a), is still a lawful  
7 product. That's the difference.

8 MR. AMER: Okay.

9 MR. REED: --

10 MR. AMER: Mr. Freeman, I know you've been  
11 waiting, so let me go to you first, and then we can  
12 come back to Mr. Reed.

13 MR. FREEMAN: Thank you. So there's a  
14 clarification that I think is important to make here  
15 and this is from the perspective of somebody who is  
16 maybe deeply integrated with the software stacks that  
17 we're using and saying the technology that we're  
18 actually working with here. So we often are using the  
19 term "jailbreaking." And we're using it fairly  
20 loosely. And we all come here every three years and  
21 we talk about jailbreak a lot. And we -- I think we  
22 all have a general idea of what it is. But there are  
23 specific nuances that are very important that related  
24 to the written comments from Mr. Reed, as well as the  
25 Joint Copyright, and now the spoken commentary, both

1 from Mr. Reed and from Mr. Stoltz, with relation to  
2 what functionality you would need to jailbreak a  
3 device for versus not.

4 And so I'm going to take one specific  
5 example that is kind of threaded through a lot of the  
6 different comments here and that is relating to Kodi  
7 and a Fire Stick. This is something that in Mr.  
8 Reed's comments, there's specific mention of there's a  
9 website you can find, troypoint.com, that talks about  
10 how you jailbreak a Fire Stick and you install Kodi on  
11 it. And there was even commentary here about some of  
12 the discussion even from Mr. Stoltz, talking about  
13 applications you might load onto a jailbroken device.  
14 The vast majority, if not, almost all of the devices  
15 that we're talking about in this class of devices that  
16 are designed to show applications on the screen are  
17 user extensible in the form of applications that  
18 they're allowed to run and, in fact, are user  
19 extensible by the end user of the applications they're  
20 allowed to run, and they are not designed to prevent  
21 people from writing an application, even one that is  
22 primarily designed to infringe and running it on the  
23 device without any circumvention of any technological  
24 measure.

25 In particular, I will pick on the Fire

1 Stick. That website, troypoint.com, has no clue what  
2 the term "jailbreak" means. They use the term  
3 "jailbreak" continually to mean taking a third-party  
4 application and loading it on the device using the  
5 supported feature of going into the settings panel and  
6 saying, I would like to be able to load a third-party  
7 application onto this device.

8 And so I feel like we need to really be  
9 focusing our attention on what is the actual  
10 infringement that we're talking about, what is the  
11 actual infringement that is possible. And I'm kind of  
12 under the maybe naive impression that the idea is that  
13 while there's copywritten music and movies that are  
14 moving to this device that people are going to  
15 jailbreak it and then rip that content off the device.  
16 And that is not what Kodi is doing and that's not what  
17 any of these other products are doing. I don't know  
18 if I've heard of anybody who are waiting on jailbreaks  
19 for these devices in order to get that content.

20 Now I see Mr. Reed shaking his head, and I  
21 just want to say that I think that the reason why I  
22 have that naive impression is that loading a -- and  
23 this now ties directly to what Mr. Stoltz had said,  
24 loading a third-party application onto a device to add  
25 functionality to it is not bypassing the technological

1 protection measure for purposes of accessing any of  
2 the content that is being protected by that  
3 technological protection measure and, therefore, seems  
4 outside of the scope of the statute that we're  
5 discussing. And so all of this discussion about  
6 loading third-party applications on the devices seems  
7 out of scope for so many reasons that I find that we  
8 always end up getting so stuck on this idea of, well,  
9 what could you do with the device theoretically, but  
10 it doesn't seem relevant. That doesn't come to light.

11 MR. REED: Right.

12 MR. AMER: Okay, thank you. So let's go to  
13 Mr. Reed and then Mr. Williams, oh, and then Mr.  
14 Stoltz quickly, and then I think we're going to move  
15 to the next topic.

16 MR. REED: Well, weirdly enough, I'm going  
17 to agree with Mr. Freeman almost entirely on almost  
18 all of that from the standpoint of developing a stack  
19 and the ability of third-party applications to run on  
20 products. That's what my members do. We write  
21 applications that run on products.

22 The difference that we're running into  
23 here -- and it was interesting with Mr. Stoltz saying  
24 that Kodi Box, the underpinning software, is legal and  
25 legitimate, also completely correct. The difference

1 is we don't have a market failure, number one, and  
2 number two, we're now getting wrapped around the axle  
3 on the whole platforms debate and discussion, right,  
4 so that the purveyors of these products that use TPMs  
5 to protect what third-party applications can be  
6 installed or how they're installed have some measure  
7 of control, and they use copyright appropriately to  
8 ensure some level of control over those platforms.

9 Now this would be a much more interesting  
10 discussion if there was literally no other way to put  
11 a plug-in device in, but we quite -- we have plenty of  
12 open-source USB sticks that are available. So the  
13 ability of my members to write applications that run  
14 on a Fire Stick, run Apple TV, part of the decision  
15 we're making from a market perspective is the  
16 advantages of that user interface and the safety and  
17 security that a user feels. So degrading it and  
18 having a world where the applications are less  
19 certain, less for sure -- and, look, Cydia, there's  
20 some great stuff on there, to Mr. Freeman's credit.  
21 That's a -- there are some wonderful things on that  
22 product. But, frankly, most of the users out there on  
23 the iPhone are looking for a different experience than  
24 is provided. I enjoy some of that stuff, but it's not  
25 for everyone.

1           So the problem that we're seeing, Mr. Amer,  
2           is we don't have a market failure, and the ability to  
3           load third-party applications are something that the  
4           holders of the TPMs want to have some modicum of  
5           control over. To Mr. Freeman's point, it's not 100  
6           percent. To Mr. Stoltz's point earlier, bad things do  
7           slip through. But what we're talking about here is  
8           expanding that exemption when there isn't a clear-cut  
9           need for it, and the standard that the Copyright  
10          Office needs to use is one where you're needing to  
11          create an exemption to fill a hole where something is  
12          missing either in the market or the capability, and  
13          that's just not the situation that we're seeing. I  
14          certainly know my members love putting apps on  
15          wherever they can, but we also benefit from some of  
16          the platform advantages.

17                 MR. AMER: Okay, thank you. Let's go to Mr.  
18          Freeman next, or was that your --

19                 MR. FREEMAN: Sorry, I just had not lowered  
20          my hand from earlier.

21                 MR. AMER: Oh, okay. That's fine. Let's go  
22          to Mr. Williams and then, Mr. Stoltz, you can respond  
23          to both.

24                 MR. WILLIAMS: Thank you. So, on the Kodi  
25          Box cases and the similar cases about applications

1 that are involved in illegal streaming of video, I  
2 mean, I want to be clear that I am not personally  
3 litigating those cases, so I do want to make sure I'm  
4 clear on that because some of these details are  
5 important, of course. But my understanding is that in  
6 at least some of those cases, Amazon Content Services  
7 is a plaintiff. I also understand that at some point  
8 in time, because of its association with infringement,  
9 Amazon's app store stopped facilitating the downloads  
10 of the Kodi application. My understanding is also  
11 that Google stopped -- stopped prioritizing search  
12 results for Kodi because of its association with  
13 infringement. And if you look at the website for  
14 Kodi, I think you can kind of make up your own mind on  
15 how they market themselves. But there is a real  
16 problem there, and the cases are trying to address  
17 that problem, and it is only exacerbated by removing  
18 the ability of an app store to try to address  
19 infringement concerns.

20 The other point I just wanted to make is  
21 that what Mr. Freeman is saying about the ability to  
22 install third-party apps on these devices, if true,  
23 renders the need for this exemption zero because there  
24 are alternatives. And if consumers are looking to do  
25 this and they're proactive about it, then they can

1 already do it, if I'm understanding his point, and why  
2 undermine the kind of typical retail setting that most  
3 consumers experience by encouraging these devices to  
4 be hacked if people who actually are proactively  
5 interested in doing this can already do it?

6 MR. AMER: Okay.

7 MR. STOLTZ: May I respond?

8 MR. AMER: Mr. Stoltz, yeah, let's go to you  
9 next, and then I take it, Mr. Freeman, did you want to  
10 just quickly respond to that last point about -- okay.  
11 So, Mr. Stoltz.

12 MR. STOLTZ: Thank you. I think we should  
13 talk a little bit about what the need is. Again, this  
14 is in our papers, so I won't belabor it, but -- so one  
15 need is with Apple TV. That's a high-end device, a  
16 fairly expensive one that does not allow sideloading.  
17 People who want to add applications of their choice  
18 that were not pre-approved by Apple have to jailbreak,  
19 and that's very similar to other devices that run iOS.  
20 Other devices, Android-based devices and some other  
21 ones, Mr. Freeman is absolutely correct that those  
22 allow sideloading.

23 But there's a few things that you don't get  
24 with sideloading. You don't get fundamental access to  
25 the device, which means you can't change -- which

1 means there are aspects of it that can't be changed,  
2 so, for example, wanting a different home screen, and  
3 that's really important because the manufacturers of  
4 these products steer the user towards their own video  
5 offerings or the video offerings of trusted partners,  
6 and one aspect of and one important reason why people  
7 want to have fundamental access to the devices that  
8 they own is to choose the video they want to see  
9 without being steered. So that's another example.

10 And I'll give a third, which is making  
11 devices compatible with other devices that people  
12 happen to own, so the ability to use game controllers  
13 that you may have with a streaming device that you  
14 have in a way that hasn't been implemented by the  
15 manufacturer. Connecting phones or other personal  
16 computing devices, allowing them to interact with the  
17 streaming device in ways that the manufacturer hasn't  
18 already implemented and isn't approved of in the app  
19 store.

20 And then very quickly, so this notion of,  
21 well, the app authors or platform maintainers having  
22 the ability to use TPMs. That's not what's at stake  
23 in this rulemaking. Nothing in Section 1201 affects a  
24 manufacturer's ability to use TPMs, particularly  
25 because most of -- most users don't jailbreak.

1 Jailbreaking is a significant minority of users who  
2 want expanded capabilities, who have these needs.  
3 Another one, by the way, is increasing privacy, say,  
4 by running a VPN to control where people's personal  
5 information goes. That's something else you can't  
6 necessarily do with sideloading. But --

7 MR. AMER: Let me just -- and I'm sorry to  
8 interrupt. Let me just jump in because I want to be  
9 mindful of time. So I want to give Mr. Freeman a  
10 chance to make his point, and then we do have to turn  
11 to the next topic. So, Mr. Freeman.

12 MR. FREEMAN: Yes. I just wanted to help  
13 draw this line that in some sense Mitch is describing  
14 here. So the list that Mitch has given is actually  
15 interestingly in the document from Joint Copyright.  
16 It is like, these uses include, and there's an entry  
17 one, adding a web browser to a streaming device, and  
18 then I provide a slight separation and then I say I'm  
19 selling different home screen saver, controllers,  
20 broadcast, TV tuner, a list that continues. And then,  
21 at the end of the paragraph, it is stating that these  
22 identified uses can be accomplished through devices  
23 without access controls with app installations that  
24 are readily available in the marketplace, talking the  
25 same discussion we're having here.

1           The line that I think is important to draw  
2 is, is that there is a supported set of functionality  
3 that applications are allowed to have on these  
4 different platforms, and then there is what you're  
5 able to do when you have jailbroken the device, and  
6 that separation is where we oftentimes talk about the  
7 restrictions that Apple has on their -- for example,  
8 on their app store, which include the Apple TV. But,  
9 ironically, the thing that everyone here is always  
10 concerned about, which is building applications like  
11 Kodi, is virtually never in the set of restricted  
12 things of the companies that are, you know, we talk  
13 about as having extremely restricted practices with  
14 relation to what you can install on your device. I'm  
15 sitting next to an Apple TV that is not jailbroken  
16 that's running Kodi. I can't run my Orchid Labs VPN  
17 software on it. I'm unable to -- it's got a screen  
18 saver that actually started making me feel seasick and  
19 I really want to change it. I can't change the screen  
20 saver. There's a lot of functionality in the device  
21 that I have no ability to change, but, ironically, the  
22 only thing that I am easily able to put on it here is  
23 I can install Kodi on it without issue because no one  
24 is restricting the ability to display things to the  
25 screen or use access on the network.

1           And I really feel like that line needs to be  
2 understood because I feel that without understanding  
3 that line, we end up in these discussions of thinking  
4 that these exemptions are going to enable some large  
5 amount of infringement, even ones that I feel are not  
6 related to the statute, but it, in fact, doesn't.  
7 Those infringement possibilities were always here.  
8 The thing that you're limiting us from being able to  
9 do is to get access to that extended functionality.

10           MS. SMITH: Thank you, Mr. Freeman. Does  
11 anyone disagree with that characterization of what the  
12 access controls are doing? Mr. Reed?

13           MR. REED: I would say I wouldn't disagree,  
14 but I'll give a codicil. So, in the terms of service  
15 with Apple, for example, one of the things that we are  
16 not permitted to do is use undocumented APIs. And so  
17 jailbreaking in part is, well, I want to mess with the  
18 guts of this product, I want to do something that  
19 isn't part of what Apple allows me to do. But here's  
20 the reality of it. We don't have a market failure in  
21 that there are other products that if you want to  
22 tweak, test, turn, and do other things, there are  
23 plenty of products available. And as Mr. Freeman  
24 noted, the reason that Kodi Box, the baseline software  
25 that runs Kodi is available on these app stores is

1 that the underpinning software itself does not  
2 necessarily mean that infringement's going to happen.  
3 The problem, as the Copyright Office has noted, is  
4 what becomes the primary or most regular use for it,  
5 and it doesn't take much of a web search to see that  
6 that's a primary purpose.

7 But, yeah, I mean, this is the natural poll  
8 intention that exists between somebody who wants to  
9 tinker and a company that wants to sell an experience.  
10 And Apple sells an experience. They want that Apple  
11 TV to have a certain experience and they built it into  
12 their pricing model and the way that they sell it to  
13 my developers about what we get out of being part of  
14 this platform. We get access to customers in a way  
15 that they're more willing to use our applications.

16 So the problem that he's outlining I don't  
17 think necessarily is a problem because the market has  
18 offered other solutions. You don't have to buy an  
19 Apple TV. They aren't the only product on the market.  
20 They are very highly restrictive. From a member's  
21 perspective, there are benefits to that. There are  
22 also tradeoffs. We don't have access to the full  
23 suite of APIs. But there are some significant  
24 economic benefits that go to third-party developers  
25 who participate on those platforms.

1           MR. AMER: Mr. Ayers, did you have something  
2 quickly?

3           MR. AYERS: Yeah, thank you. And  
4 acknowledging that if we actually are talking about  
5 expressly and explicitly carving out DVD, Blu-ray  
6 players, and game consoles, it may be less of an  
7 issue. But just to clarify, as I've mentioned in  
8 other elements of this hearing, of these hearings over  
9 the past couple weeks, the firmware of a device is not  
10 only protecting against -- or restricting the ability  
11 to install third-party software and not only  
12 protecting against malware and so forth, but it's also  
13 used to protect other elements of the device that are  
14 used in a content protection ecosystem, such as making  
15 sure that the applicable cryptographic elements, such  
16 as decryption keys, device keys are available and  
17 secure for the device to play protected content. So  
18 that's one of the elements that's protected by the  
19 firmware, in addition to all these other  
20 functionalities we've talked about.

21           MR. AMER: Okay, thank you. I believe my  
22 colleague, Ms. Kern, has a few follow-up questions to  
23 sort of drill down on this issue a little bit more,  
24 and then we will turn to SFC's petition regarding  
25 routers.

1 MS. KERN: Thank you, Mr. Amer. So I just  
2 had a couple questions on how the proposed exemption  
3 differs from the current jailbreaking exemption that's  
4 currently in place. So I just wanted to ask whether  
5 the TPMs used for non-integrated video streaming  
6 devices differ from those for integrated streaming  
7 devices, and if there is a difference, what are they,  
8 and do these different TPMs require different avenues  
9 of circumvention?

10 MR. STOLTZ: They do not. The smart TVs  
11 that are capable of running a wide variety of  
12 applications primarily use versions of Android, as do  
13 many of the non-integrated devices. For the most  
14 part, we're either talking about flavors of Android,  
15 including Amazon's versions of Android, or we're  
16 talking about versions of Apple's iOS, or we're  
17 talking about the manufacturer's proprietary operating  
18 systems, which do exist in both of these cases. But  
19 the types of TPMs and the methods of circumvention are  
20 essentially the same within each one of those sort of  
21 software platforms.

22 MS. KERN: Thank you. Mr. Freeman, I didn't  
23 mean to put you on the spot, but I saw you nodding  
24 your head, is that correct?

25 MR. FREEMAN: That is definitely correct.

1 MS. KERN: Thank you. Okay. And then  
2 moving to Mr. Williams, Joint Creators and Copyright  
3 Owners argued that the lack of functionalities that  
4 proponents seek to add on the devices protected by  
5 TPMs is a mere inconvenience and that these, I guess,  
6 uses can be accomplished through devices that are  
7 already available on the market. So, I guess, can you  
8 please provide specific examples of adequate  
9 alternatives to circumvention?

10 MR. WILLIAMS: Sure, and I think part of  
11 what we said was based on what they admit in their  
12 comments, which is a lot of this is just because  
13 people want to do it because they enjoy it and they  
14 think it's fun. And that's okay, but it's not really  
15 a justification for creating a regulation in the  
16 C.F.R. of this, you know, import. And so that's kind  
17 of why we said a lot of this is about convenience.

18 And then, on the alternatives side, I mean,  
19 one thing that Mr. Stoltz was talking about was using  
20 your video game console controller to operate one of  
21 these streaming stick devices, and you can just Google  
22 these streaming stick devices. I mean, they come with  
23 their own controller. You know it -- you don't need  
24 to use your video game console controller to control  
25 one of these devices. You've already got your own

1 controller if you want it and you want to use it. And  
2 so there's another question with that one also, which  
3 is does this exemption even enable that or would you  
4 also have to hack the video game console controller,  
5 which would not be covered, as I understand it, by  
6 this proposal.

7 So those are the kinds of issues that we  
8 were trying to point out, and we've discussed some of  
9 them today, that there's other ways of accomplishing  
10 the same goals without this exemption and that, if it  
11 really is a matter of people just wanting to have fun  
12 with some of these devices, I don't think that's  
13 grounds for an exemption.

14 MS. KERN: And, Mr. Stoltz, would you like  
15 to respond?

16 MR. STOLTZ: Yes. Mr. Williams' clients  
17 produce entertainment. So, if the question is wanting  
18 to have fun, that's kind of all we're talking about  
19 here. It isn't really because people can also use  
20 these devices to inform themselves and to communicate  
21 with others. So I think importance may be a little  
22 bit in the eye of the beholder. But, if the test is  
23 having fun, then there is an equivalency here.

24 Another point to some of the ways that Mr.  
25 Williams and Mr. Reed have presented evidence in this

1 hearing now, there are no rules of evidence in this  
2 proceeding, nor should there be. But I would offer  
3 that presenting "I just did a Google search and here  
4 are some of the undisclosed websites that I found" is  
5 not a very helpful method of adducing facts in this  
6 proposal. We can Google as well. We have cited our  
7 sources in our papers. So this notion of sort of what  
8 one might find out there, I guarantee you, you can  
9 find anything you want out there on the Internet.

10 And, finally, specifically about game  
11 controllers, the majority of them, in my  
12 understanding, do not have TPMs on them. And, again,  
13 the issue is equipment that you already own being able  
14 to use it in -- use them together. And this idea of,  
15 oh, well, you can go out and buy more equipment,  
16 there's not a rationale that the Copyright Office has  
17 ever credited with regard to jailbreaking exemptions.  
18 I mean, you can go buy another phone. You can use a  
19 PC instead of a phone. But this is -- the precedent  
20 is that that's not an operative concern with respect  
21 to jailbreaking. There's no reason why that should be  
22 an operative concern with respect to non-integrated  
23 steaming devices when it was not a concern with  
24 integrated streaming devices.

25 MS. KERN: Thank you. And then just one

1 more question, and I'll direct this to Mr. Stoltz.  
2 So, in past recommendations, jailbreaking was  
3 recommended because the exemptions sought to install  
4 alternative software. In some of your comments, you  
5 note that users want to jailbreak video streaming  
6 devices to install other absent programs, such as In  
7 Control and Air Magic, and then you mentioned a couple  
8 other things, such as, I believe it was increased  
9 privacy, devices compatible with others in the home,  
10 installing a different home screen, and possibly  
11 sideloading. So my question is basically, how are  
12 users adversely affected by their inability to install  
13 apps or programs or do some of the things that you had  
14 mentioned previously?

15 MR. STOLTZ: Well, all of those things  
16 require jailbreaking. And I realize that in this  
17 proceeding we've used the word, the term  
18 "jailbreaking" a bit loosely, and Mr. Freeman is  
19 correct about that. The term "jailbreaking"  
20 originally came from the iOS, sort of the Apple world.  
21 We use it a little bit more loosely here really to  
22 mean to gain fundamental access to the device for the  
23 purpose of adding or removing software. But all of  
24 those things are adding or removing software, and one  
25 cannot do them without circumventing access controls

1 on the device.

2 MS. KERN: Thank you. And then it looks  
3 like Mr. Zambrano Ramos has a question.

4 MR. ZAMBRANO RAMOS: Thank you, Ms. Kern.  
5 This would be for proponents. I'm curious if some of  
6 these uses have to do with accessibility, so, for  
7 example, using a game controller instead of the  
8 controller that came with the stick, and if you could  
9 talk a little bit more about those uses. Thank you.

10 MR. STOLTZ: Yes. Those can absolutely  
11 pertain to accessibility. Certainly, different forms  
12 of controllers have different forms of accessibility  
13 and different levels of accessibility. I believe it  
14 was called end controller, the idea there was sort of  
15 a universal control interface to a streaming device.  
16 In other words, one can use any sort of input device,  
17 basically anything that can simulate a mouse or  
18 keyboard to provide input to the device, which means  
19 whatever device is most accessible to the user. So  
20 that is absolutely a factor. Otherwise, you're sort  
21 of at the mercy of the manufacturer.

22 I should add that can also include  
23 manipulations of the screen. This is something again  
24 that you can't do with sideloading. So inverting the  
25 video to make the text more readable or altering the

1 colors that are displayed on the screen to make them  
2 more readable to people with certain visual  
3 disabilities, that's another feature that generally  
4 can't be done with sideloading and not at all on an  
5 Apple device without jailbreaking.

6 MR. AMER: Okay, great. I think we are  
7 going to have to move to the next topic, and so I want  
8 to turn to, Mr. Williamson, your petition regarding  
9 jailbreaking of routers and other networking devices.  
10 I just would like to start with you and invite you to  
11 sort of describe generally what the purpose of this  
12 exemption would be and to describe the types of  
13 activities that you're hoping to make possible.

14 MR. WILLIAMSON: Sure. Absolutely. And I  
15 appreciate the opportunity to testify here today. So  
16 my client, Software Freedom Conservancy, is a  
17 nonprofit organization that supports the development  
18 of free and open-source software and advocates for the  
19 rights of the users to use software in the way that's  
20 most suited to them. They are the fiscal sponsor for  
21 a project called OpenWrt, which is a project to  
22 produce an open-source, free and open-source software  
23 operating system that can be run on routers and other  
24 dedicated networking devices.

25 And as we pointed out in our petition,

1 OpenWrt allows users, number one, to secure their  
2 devices. It's regularly updated and, as we pointed  
3 out, research suggests updated far more frequently  
4 with security patches than the stock software that  
5 comes on routers. It gives users the opportunity to  
6 protect their privacy, for example, by installing DNS  
7 encryption and VPN software on the router itself. And  
8 it gives users the opportunity to run a host of free  
9 and open-source applications on the router that  
10 wouldn't necessarily be available without replacing  
11 the firmware on the router. And as we pointed out, it  
12 also supports several research efforts into  
13 development of new networking techniques that have  
14 directly fed into the development of networking  
15 standards and improved networking capabilities.

16 MR. AMER: Okay, great. Thank you. I  
17 wanted to invite the opponents to address this  
18 proposal. I know there were some concerns in the  
19 comments. In particular, there seemed to be a concern  
20 about -- similar to the other petition, about to what  
21 extent -- what devices this would cover and to what  
22 extent this might permit access to other types of  
23 copyrighted works. So, I know that Software Freedom  
24 Conservancy in its reply said that routers and other  
25 networking devices possess neither the video outputs

1 required to transmit content to televisions, nor the  
2 processing power to run video streaming applications.  
3 So I wonder if that addresses any of the concerns that  
4 the opponents have raised, if that sort of allays any  
5 of the concerns you had with this proposal. Mr.  
6 Ayers?

7 MR. AYERS: Thank you. Again, this is sort  
8 of like this is a situation where the explanation is  
9 helpful certainly, but I'm not sure it exactly matches  
10 with the proposal as currently drafted, and so I'm  
11 assuming there's a way to get to there from here. My  
12 concern is with the text "other networking devices,"  
13 where that could actually be a very broad term, and I  
14 would want to make sure that -- I don't think this is  
15 the intention. My understanding of the explanation is  
16 that this is not the intention, but, as currently  
17 drafted, "other networking devices" could arguably  
18 sweep in anything with Wi-Fi, and so we'd want to make  
19 sure that we're not doing that.

20 Or even taking it just a slight step  
21 further, many devices now generate their own local  
22 area networks, their own SSIDs, in order to make it  
23 easy for a consumer to make a network connection with  
24 that device and to use a remote device to adjust other  
25 settings. I'd want to make sure that those sorts of

1 devices, for instance, a game console that generates  
2 its own SSID in order to allow easy setup, is not  
3 swept into the category of "other networking devices"  
4 simply for that reason.

5 MR. AMER: Thank you. Mr. Williamson?

6 MR. WILLIAMSON: Yeah, I understand that  
7 concern, and that's obvious or that's absolutely not  
8 the intention to sweep in just any device that has  
9 networking capabilities. So I think that we would  
10 support an exemption that extended to dedicated  
11 networking devices, including routers, switches, hubs,  
12 bridges, gateways, modems, repeaters, and access  
13 points, and that that would be effectively those  
14 dedicated devices would be a pretty comprehensive list  
15 of the devices that we're concerned with.

16 MR. AMER: Thank you. Mr. Williams?

17 MR. WILLIAMS: Yeah, thanks. I agree with  
18 Mr. Ayers, and the narrowing is helpful. We  
19 definitely want to make sure things like VR headsets,  
20 other devices that can connect directly are not swept  
21 in to this proposal and that it's really focused on  
22 the types of uses that Mr. Williamson has identified,  
23 things like upgrading the security protections on the  
24 router, et cetera.

25 There was some comment in I think the

1 opening comments that basically said these routers are  
2 the equivalent of general purpose computers. And so  
3 drawing the line the way you did, Mr. Amer, that says,  
4 well, then they're not -- they're somehow not capable  
5 of running streaming applications, you know, I'm not  
6 sure that those two things work together. So I think  
7 the line-drawing here is going to be the most  
8 important part. And I think adding also the limiting  
9 language that you included in the voice assistant  
10 exemption last cycle but is not in some of the  
11 preexisting exemptions, we would support doing that or  
12 even language that's even more limiting.

13 MR. AMER: Okay. That's helpful. Mr. Reed,  
14 do you have a similar position to Mr. Williams in that  
15 it sounds like there may be some openness to the  
16 substance of this proposal if there is appropriate  
17 limiting language, is that accurate?

18 MR. REED: Yeah, that's correct.

19 MR. AMER: Okay.

20 MR. REED: And I have a personal fondness  
21 for OpenWrt. I think there still may be some code in  
22 there that I wrote back in the days. But the question  
23 I had for Aaron Williamson very quickly was, how are  
24 we envisioning Mesh networks? So, for example, let's  
25 say a Blu-ray player, we're going to start seeing it

1 on Mesh. Do you see this extension -- if one of Mr.  
2 Ayers' clients' Blu-ray player is now an extender, a  
3 range extender or is part of -- now that we've jumped  
4 to some of the new standards onto a Mesh network, do  
5 you think that -- you want to keep it limited enough  
6 that, no, it doesn't mean you can open up the Blu-ray  
7 player? But we can get to say the baseline Lynksys  
8 router and make a modification there or do software  
9 updates, but not necessarily break into the Blu-ray  
10 player, even though it might be part of a Mesh  
11 network? That's my interpretation of your limiting  
12 and that sounds fine. I mean, that sounds reasonable  
13 to solve Mr. Ayers' problem and Mr. Williams's points  
14 of view on the general purpose computer.

15 MR. WILLIAMSON: Yeah. Maybe my client will  
16 rap my knuckles, but I do -- I'm not aware of any  
17 plans to put OpenWrt on Blu-ray devices, nor is that  
18 what's contemplated by our client.

19 MR. REED: In which case then I think the  
20 limiting language is helpful. But I agree with Mr. --  
21 Matt Williams's points on just be careful that we  
22 don't turn it into an exemption that gets Mr. Ayers'  
23 clients wrapped around the axle. So, yes, thank you  
24 for the limiting explanation, Mr. Williamson.

25 MR. AMER: Mr. Zambrano?

1                   MR. ZAMBRANO RAMOS: Yes, thank you, Mr.  
2 Amer. Just a couple of questions for proponents. I  
3 just want to make clear, would this include the  
4 modem/router combos that are sometimes leased by  
5 Internet access providers?

6                   And then the second question, I was curious  
7 if you could drill down a little bit on the TPMs at  
8 issue. I notice there were different kinds of TPMs  
9 and different methods of circumvention, and at one  
10 point, I think your comment mentioned that the TPMs  
11 protect the stock operating systems of the networking  
12 devices. I'm curious if you could talk a little bit  
13 more about how that protection works. Does it control  
14 access to stock firmware? Does it just prevent you  
15 from loading a different firmware? Does it do both,  
16 or does it do something else? Thank you.

17                   MR. WILLIAMSON: Sure. Thank you. So, you  
18 know, I guess I don't think that there is any  
19 intention here to enable the installation of  
20 alternative software on a device you don't otherwise  
21 have the right to install software on, right? So a  
22 leased router, I think, would properly fall outside  
23 the scope of the proposed exemption.

24                   And, sorry, apologies, quick reminder of the  
25 second half of your question.

1           MR. ZAMBRANO RAMOS: How do the TPMs at  
2 issue work? What exactly do they protect?

3           MR. WILLIAMSON: Yeah, absolutely.

4           MR. ZAMBRANO RAMOS: Do they protect access  
5 to the firmware software? Do they just prevent you  
6 from loading different firmware?

7           MR. WILLIAMSON: They primarily prevent, as  
8 I understand it, yo know, many of the routers or the  
9 examples that we cited in our comment involve firmware  
10 encryption schemes that basically check to see whether  
11 the firmware you're loading is consistent with the  
12 firmware encryption scheme that they want to see on a  
13 new firmware for installation. So it's necessary to  
14 circumvent or reverse-engineer that encryption scheme  
15 in order to produce a firmware that is encrypted  
16 according to the right sort of protocol. There are  
17 also definitely examples out there, you know, of  
18 firmwares that are encrypted on the device and then  
19 sort of loaded into the memory decrypted, I believe,  
20 and there are also your typical access controls, user  
21 name and password, that sometimes is necessary to  
22 circumvent those to get root access to the device.  
23 Those are the ones I'm primarily familiar with.

24           MR. ZAMBRANO RAMOS: And, sorry, just a  
25 follow-up. And do you think that all of those TPMs

1 you mentioned constitute TPMS under the statute?

2 MR. WILLIAMSON: Well, unfortunately, this  
3 is -- I advise clients on the scope of Section 1201  
4 regularly, and the language is very broad, right, and  
5 so it's difficult to say with certainty which of those  
6 TPMS would be considered to effectively control access  
7 to a copyrighted work or protect the right of a  
8 copyright owner. So, certainly, they're all measures  
9 that I think could be interpreted that way.

10 MS. SMITH: I wanted to check and see, Mr.  
11 Zambrano Ramos, do you have any more questions?

12 MR. ZAMBRANO RAMOS: No, thank you, Ms.  
13 Smith.

14 MS. SMITH: Thank you. So I think that we  
15 are done with our questions, but we wanted to give any  
16 of the panelists an opportunity, you know, sort of a  
17 last call, if there's anything you think that we  
18 should know before we conclude this hearing. We might  
19 -- we'll probably wrap up a little bit early. So I  
20 don't know, Mr. Williams, if your hand is still raised  
21 or newly raised. Let me know, Mr. Williamson. And if  
22 not, I see Mr. Stoltz had raised his hand. Okay, Mr.  
23 Stoltz?

24 MR. STOLTZ: Thanks. I just -- and, again,  
25 thank you for this opportunity. I just wanted to

1 reiterate that and point out that there is, you know,  
2 a very small difference between the existing  
3 exemption, which has been in place for six years, and  
4 what we've proposed here with regard to non-integrated  
5 streaming devices, and what you won't find in the  
6 record is any meaningful distinction. So opponents  
7 have not offered up any meaningful distinction. In  
8 fact, I think Mr. Williams said that, you know, his  
9 objections are the same objections that he has raised  
10 in previous cycles and that the Copyright Office has  
11 not credited. So I'll leave you with that and thank  
12 you again.

13 MS. SMITH: Thank you, Mr. Stoltz. Mr.  
14 Freeman?

15 MR. FREEMAN: This is one very minor  
16 clarification that I'll be kicking myself forever if I  
17 don't quickly add.

18 So I separated out in the joint copyright  
19 list of uses the adding a web browser versus all of  
20 the other ones. And the reason why I separate that  
21 one out is that's a use case where you might  
22 ostensibly believe that, well, you can build a web  
23 browser if you're given merely the same access you  
24 would need in order to print things to the screen,  
25 such as with Kodi, my description with that. But, in

1 fact, web browser engines, because of their third-  
2 party code-loading security requirements, in addition  
3 to a lot of their intricate performance requirements,  
4 actually require more access to the system than is  
5 oftentimes given to third-party application  
6 developers.

7 And so I just wanted to kind of throw in  
8 there that this subtle line between the things that  
9 are allowed, which weirdly include Kodi, and the  
10 things that are not allowed, which include all of  
11 these things that we would like to be able to do, is  
12 extremely subtle.

13 MS. SMITH: Thank you, Mr. Freeman, for the  
14 clarification. Mr. Williams?

15 MR. WILLIAMS: Yeah, thank you. Just a  
16 couple of clarification points about what Mr. Stoltz  
17 just said. I tried at the beginning to articulate  
18 that we have kind of multiple grounds for objecting in  
19 opposing this proposal. The first one and the most  
20 important one for us does not relate to the objections  
21 that we've put forward in the past that the Office has  
22 disagreed with us on, and that's the one we focused on  
23 first during the hearing, which is how do you define  
24 this class in a way that doesn't sweep in the devices  
25 that Mr. Stoltz says he doesn't want to cover.

1           And the language they've put forward, I  
2 would submit, doesn't succeed in that. Whether it's  
3 integrated or not integrated into a device, it doesn't  
4 address the concerns that I raised about the fact that  
5 some video game consoles don't even have disc drives.  
6 They certainly run applications. They certainly  
7 stream video to a screen. And so that's our primary  
8 objection.

9           The point I was trying to make about past  
10 decisions and the Office's kind of disagreement with  
11 where I come out on things was more about the fact  
12 that we do think that these exemptions over time cause  
13 harm and result in infringement, and the evidence that  
14 I've put forward about that in this discussion during  
15 this cycle is similar to things we've put forward in  
16 the past and that have not, in the Office's view, been  
17 enough to deny exemptions. So I just wanted to be up  
18 front about that from the beginning, but I didn't want  
19 it to get confused here at the end that I was saying  
20 everything that I've put forward has been rejected in  
21 the past. I don't think that's the case.

22           Mr. Freeman keeps referring to our list from  
23 our comments. I mean, what we tried to do was just  
24 summarize what EFF put in their comments. So this is  
25 not our list. It's just a list of things that Mitch

1 put in his comments that we were trying to respond to.

2 And then the last thing I guess I'll say in  
3 the spirit of fun that Mitch was raising earlier is  
4 touche on that one. We do want people having fun, and  
5 our clients love that people enjoy their products.  
6 And so, you know, congrats, you made a good point  
7 there.

8 MS. SMITH: Thank you, Mr. Williams. Mr.  
9 Williamson?

10 MR. WILLIAMSON: I just want to take a  
11 moment to express my appreciation to Mr. Reed for his  
12 contributions to OpenWrt and to the Copyright Office  
13 and the NTIA. I know that this proceeding is a long  
14 one and potentially grueling at times, and so I want  
15 to thank you for your dedication and professionalism  
16 throughout this process.

17 MS. SMITH: Thank you. I think we all  
18 appreciate the time that it takes for participants as  
19 well and appreciate you coming forward and sharing  
20 your thoughts. I noticed this proceeding was not  
21 mentioned as particularly fun, but we appreciate you  
22 showing up and think it is important to the process.

23 We're going to stop 14 minutes early and  
24 then we will start at 12 Eastern with Class 10, which  
25 is -- I'm sorry, 1 p.m. Eastern, which is Class 10,

1       unlocking.  And so, if anyone is in the attendee or  
2       anyone else wishes to sign up for the audience  
3       participation session, that will be -- that will  
4       conclude these hearings, so this is sort of last  
5       chance to sign up if anyone wants to contribute  
6       anything else for our discussion.  Okay, thank you.

7               (Whereupon, at 11:46 a.m., the hearing in  
8       the above-entitled matter recessed, to reconvene at  
9       1:00 p.m. this same day, Wednesday, April 21, 2021.)

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1 through the link in the chat if that's something that  
2 is of interest to you.

3 So turning to this session, I think everyone  
4 is pretty familiar with living our lives on Zoom by  
5 now, as well as these hearings. But just to go over,  
6 we have a court reporter who is transcribing the  
7 proceedings. The video will be live-streamed and will  
8 be made available on the Copyright Office's YouTube  
9 channel. So please wait for someone from the  
10 government to pose a question so we don't step on each  
11 other speaking. This is a sort of shorter, smaller  
12 panel, so we may not need to use the "Raise Hand"  
13 function on Zoom, but we have found that to be  
14 generally effective otherwise.

15 And to get started, I think we'll have those  
16 from the Copyright Office introduce themselves. I'm  
17 Regan Smith, the General Counsel. So, Mr. Amer and  
18 Mr. Gray?

19 MR. AMER: Kevin Amer, Deputy General  
20 Counsel.

21 MR. GRAY: Hi, everyone. I'm Mark Gray.  
22 I'm an attorney-advisor here in the Office of General  
23 Counsel.

24 MS. SMITH: And, Mr. Cheney, could you  
25 please introduce yourself?

1 MR. CHENEY: Sure, thank you. I'm Stacy  
2 Cheney. I'm a senior attorney-advisor at the Office  
3 of Chief Counsel at NTIA in the Department of  
4 Commerce.

5 MS. SMITH: Thank you. And then, Professor  
6 Malone and Mr. Kaufman, could you please introduce  
7 yourself and the organization you're representing  
8 today?

9 MR. MALONE: Good morning. I'm Phil Malone.  
10 I'm the Director of the Stanford Juelsgaard IP and  
11 Innovation Clinic. Jonathan?

12 MR. KAUFMAN: Hi. I'm Jonathan Kaufman.  
13 I'm a student in the Juelsgaard Intellectual Property  
14 and Innovation Clinic at Stanford, and we are  
15 representing the Institute of Scrap Recycling  
16 Industries, or ISRI.

17 MS. SMITH: Great, thank you. We appreciate  
18 you coming today. And I think Mr. Gray is going to be  
19 directing the proceeding. Go ahead, Mr. Gray.

20 MR. GRAY: Great. Hi, everyone. So, like  
21 Regan mentioned, in the past, in some of our past  
22 hearings, we've done "Raise Hand" because we've had a  
23 lot of participants. Today is pretty small, so I'm  
24 hoping this can be a little bit more of just a  
25 dialogue and a back and forth.

1           So, with that said, I wanted to start off  
2 asking a few questions about the request to expand the  
3 unlocking exemption, Class 10, to Chromebooks. So, in  
4 the proposed regulatory language ISRI provided, you  
5 propose adding a line that says "all purpose laptop  
6 computers (including Chromebooks)." Could you discuss  
7 more why, in your view, it's necessary to specifically  
8 include a brand name for Chromebooks and what purpose  
9 that's serving beyond just keeping language for all  
10 purpose laptops?

11           MR. KAUFMAN: Sure. We included that in a  
12 parenthetical for the avoidance of doubt. Typically,  
13 when you think of laptops, you think of PC laptops  
14 that run on Windows. And since Chrome has their own  
15 operating system, we want to just be very clear that  
16 the laptops definition that we included is not just  
17 PCs that run on Windows but also Chromebooks that run  
18 on a separate operating system. That's the only  
19 reason that that was singled out.

20           MR. GRAY: So one of the reasons I ask that  
21 is I think the way Google uses that brand name is sort  
22 of anything using Chrome OS, and that includes some of  
23 their tablet form factors where it may not necessarily  
24 be a clamshell laptop, but it has maybe a traditional  
25 laptop screen and then an optional detachable

1 keyboard. So, given that we already have the tablet  
2 exemption in Class 10 or in the current unlocking  
3 exemption, one of the questions I had was just sort of  
4 whether that was going to add more ambiguity and  
5 confusion rather than just saying laptops are a prong  
6 and then tablets are a prong.

7 MR. KAUFMAN: Yes. So, as far as whether or  
8 not it would create any ambiguity, I would agree that  
9 the line between tablets and laptops is getting  
10 increasingly blurry. There are two-in-ones. In my  
11 view, a laptop is just a tablet with an attached  
12 keyboard. So the fact that they are currently treated  
13 differently, one being exempted and the other isn't,  
14 doesn't make a whole lot of sense from a copyright law  
15 point of view. So, if it would be helpful to include  
16 laptops in the same prong as tablets by adding tablet  
17 or laptop computers that includes both the hybrid  
18 cases and the ones where you have a laptop that  
19 doesn't have a touchscreen and has that attached  
20 keyboard, we're fine with that. Really, we have no  
21 position about creating a fifth category for laptops  
22 or modifying the tablet language to make sure it  
23 includes laptops and Chromebooks. If they can be both  
24 a tablet or a laptop or both, I think that might help  
25 address that concern.

1           MR. GRAY: Great. Well, that actually  
2 answers the next question I was going to ask about  
3 potentially combining those two.

4           So turning to the adverse effect on non-  
5 infringing use analysis, I know, in your initial  
6 comment, you mentioned that ISRI members are beginning  
7 to obtain wireless laptops and it sounds kind of maybe  
8 between the lines that a lot of these are Chromebooks.  
9 Could you talk more about sort of the scale, like, the  
10 quantity of laptops that are coming in to recyclers,  
11 but particularly how many of those are specifically  
12 locked to a wireless carrier, as opposed to just  
13 generally being a laptop?

14          MR. KAUFMAN: Sure. So we don't have any  
15 specific numbers to speak to the scale, but I can  
16 speak to the prevalence of locked 4G LTE laptops on  
17 the market. So, in our submission, we mentioned a few  
18 examples. By my count, there are three laptops, I  
19 believe, that are locked to T-Mobile, there are six  
20 that are locked to Verizon that are on the market, and  
21 there's one that's locked to AT&T. I can give the  
22 names of each of those, but a very significant  
23 percentage of these laptops are locked to carriers.

24          And then, to the first point about the  
25 number of laptops that ISRI members are receiving, we

1 think that the only reason why these laptops have not  
2 been received in the quantities of phones or tablets  
3 in past cases is that the market for these laptops is  
4 kind of new as of the last two or three years and  
5 there's not been a lot to trade up to. So, in a more  
6 robust market with lots of options, you would, in  
7 theory, after a year or two end up selling your  
8 laptop, usually trading up to another model. There  
9 hasn't been a lot of 5G models to trade up to. The 4G  
10 models are more or less the same. So we expect that  
11 as 5G laptops enter the market, the number of these 4G  
12 first-generation laptops will increase accordingly.

13 MR. GRAY: And so maybe to build off of  
14 that, obviously, 4G is not sort of the first cellular  
15 technology. Have there just not been a lot of 3G  
16 laptops that needed to come and get included in this  
17 proceeding before? Why -- I mean, I understand that  
18 maybe there's not a lot to trade up to on the cellular  
19 connectivity side, but laptops and processors get  
20 faster ever year too. So I'm trying to figure out,  
21 why have we not seen issues with locking cellular-  
22 enabled laptops until now?

23 MR. KAUFMAN: Sure. So the first cellular-  
24 enabled laptop that I am aware of was a single model,  
25 I believe it was the HP Chromebook 11 released on

1 Verizon in 2014. There wasn't a whole lot else on the  
2 market after that. And then, in the last three years,  
3 we have seen an emergence of these cellular-enabled  
4 laptops. So, just from the span of 2019 to 2021, the  
5 number of 4G LTE laptops that are commercially  
6 available has doubled. And there is some lag time  
7 from the point in time that someone buys a cellular-  
8 enabled laptop. The average life span for any laptop  
9 is around three to five years. Of course, at some  
10 point along that way, the original owner may move on  
11 to another laptop. That doesn't spell the end for  
12 that laptop per se.

13 But, in the last proceeding, the reason why  
14 laptops was not its own category was the number of  
15 laptops on the market paled in comparison to what  
16 we're seeing now. And I really think we're in a  
17 situation where, yes, we have not seen it at the scale  
18 that the recyclers received phones and laptops in --  
19 phones and tablets, I'm sorry, in the past, but we  
20 have every reason to believe that they will either  
21 this year and even more in next year and the following  
22 year.

23 MR. GRAY: And that's partially a result of  
24 just increasing adoption and availability of 5G  
25 specifically?

1           MR. KAUFMAN: Yeah, I would say that the  
2 adoption of 5G is a major factor in people being  
3 willing to sort of move on to a better and improved  
4 cellular laptop.

5           MR. GRAY: Great. How --

6           MR. CHENEY: Mark, if I could jump in?

7           MR. GRAY: Oh, sorry. Please, go ahead.

8           MR. CHENEY: Yeah, sorry, I didn't want to  
9 interrupt you there, but, Mr. Kaufman, if you could  
10 sort of speak to, and perhaps you alluded to this a  
11 little bit in your document, about how perhaps not  
12 just the confluence of 5G being deployed more  
13 nationwide and being more available in the last year,  
14 but also the pandemic and the use of laptop increase  
15 and the need for that to include cellular technology  
16 as part of that, rather than just a Wi-Fi connection?  
17 Can you talk about maybe that sort of scenario as well  
18 in this discussion?

19           MR. KAUFMAN: Sure. So, obviously, in the  
20 last 13 months, where people work and how they work  
21 has changed dramatically. We've seen that some people  
22 are able to work from home, where they may have Wi-Fi.  
23 Others have to find a place maybe in a park or  
24 elsewhere to do their work, and that always connected  
25 feature of cellular-enabled laptops, I think, has

1 become increasingly appealing, especially as there's a  
2 lot more remote learning, a lot more people working  
3 remotely. And so the flexibility to not be beholden  
4 to getting a stable Wi-Fi connection wherever you are  
5 and being able to rely as a backup on these cellular  
6 networks, I think that use case in the last year, on  
7 top of everything else I have mentioned, certainly  
8 strengthens the case for more people turning to  
9 cellular-enabled laptops not only in the past year but  
10 in the coming years.

11 MR. GRAY: Great. And so I have a few more  
12 questions about sort of some of the specific evidence  
13 that you provided about the prevalence and quantity of  
14 locked laptops. So, in the initial comment, you  
15 mentioned that Verizon has a locking policy where  
16 devices are locked for at least 60 days after  
17 purchase. And the URL you provided for that site, in  
18 the locking FAQ, one of the questions is what devices  
19 are locked under this policy, and the Verizon answer  
20 is it's all Verizon smart phones that they sell either  
21 at a main Verizon store or a retail partner. And so  
22 that page seems to suggest that most of that locking  
23 is happening on the phone device side, as opposed to  
24 laptops. So are there other areas in your submission  
25 that can speak maybe more specifically to the kind of

1 carrier-issued policies about locking non-phone  
2 devices?

3 MR. KAUFMAN: Sure. So I think just as an  
4 initial matter, in the past, the Copyright Office has  
5 looked to alternatives to an exemption in the form of  
6 voluntary unlocking policies as being an option. I  
7 think the fact that that policy is sort of silent on  
8 laptops was important evidence.

9 As far as whether or not they are indeed  
10 being locked, there are people who have received and  
11 purchased that Lenovo Flex 5G laptop, which was the  
12 one exclusive to Verizon, who have encountered, tried  
13 using a different SIM card and have been unable to.  
14 And I think the crucial feature here with any locked  
15 laptop and especially these 5G laptops is the fact  
16 that from a technical perspective, the underlying  
17 modem supports all carriers, and that's something that  
18 we alluded to but didn't fully flesh out in our  
19 submissions. The modem that goes in that Verizon  
20 exclusive laptop does indeed support Verizon, T-  
21 Mobile, AT&T, and really any other carrier. So the  
22 only barrier in that case is the locking of that  
23 laptop.

24 Other 5G laptops that we're aware of that  
25 are locked, there's a Dell laptop that was sold

1 exclusively through T-Mobile, and T-Mobile's website  
2 says that for all devices that are sold through  
3 T-Mobile, they are locked as a consequence -- for fear  
4 of theft or fraud. That policy, I do not see limiting  
5 it to smart phones, and it suggested that if you're  
6 buying through T-Mobile, we're going to lock it  
7 regardless of what it is. But I think the crucial  
8 point is that it's that lock which is the barrier, not  
9 any technical limitation.

10 MR. GRAY: All right. And so you talk about  
11 the Lenovo Flex 5G, and so I read through those  
12 reviews you pointed to. The language sounded a little  
13 bit more like it was being sold exclusively through  
14 the Verizon sort of network or through Verizon as a  
15 company. There was actually another review from a  
16 Neowin, I think, where they were able to get it  
17 technically working on other carriers. So it was a  
18 little unclear whether there was a software limitation  
19 there or whether they just hadn't maybe put the  
20 drivers in or something like that for that laptop.  
21 Are you aware of any other sort of reviews or public  
22 statements about the Flex 5G specifically that make  
23 clear it's a software limitation rather than something  
24 else?

25 MR. KAUFMAN: Our understanding was that it

1 is a software limitation, that the folks at Neowin in  
2 that article which we did come across were somehow  
3 able to make it work. But the folks who did receive  
4 the laptop maybe didn't have the technical  
5 sophistication of the experts at Neowin, I believe  
6 have encountered a PIN lock that looks like it is the  
7 same TPM that would be present on the same modem that  
8 is in phones and that same modem is just being put  
9 into a laptop.

10 MR. GRAY: And maybe just to clarify for the  
11 audience and for the record, when you say PIN lock,  
12 you mean you have to enter some sort of PIN or  
13 numerical code to actually have the software allow you  
14 to use it with maybe a SIM card from a different  
15 network or somehow otherwise identify yourself to a  
16 different network?

17 MR. KAUFMAN: Yes. So just to expand on it,  
18 the thing that prevents any device from being used on  
19 a carrier is a setting in the cellular modem itself.  
20 Last cycle, it was referred to as the baseband  
21 processor. That is synonymous with the modem. Then  
22 you are able to modify that setting by circumventing a  
23 TPM that basically modifies whatever bits of code to  
24 allow it to communicate with other carriers. And so  
25 that hardware, and that's the firmware associated with

1 that hardware that was designed by Qualcomm, that same  
2 modem that's being put in a tablet or a laptop with an  
3 attached keyboard, we have every reason to believe  
4 that that same TPM is going to be there. It was  
5 developed in one case for phones and tablets, but no  
6 reason to modify or think that the associated TPM  
7 would be any different when you put it in a device  
8 that just happens to have an attached keyboard.

9 MR. GRAY: And that modem, is that the X55,  
10 or is that just sort of specific to the Flex 5G?

11 MR. KAUFMAN: So that X55 modem, which is  
12 the first 5G modem and the most widely adopted one by  
13 Qualcomm, was first in phones, and every 5G laptop  
14 that we cited to and that has been announced will be  
15 using that same exact modem.

16 MR. GRAY: And you have no reason to believe  
17 that the firmware would be -- that there's, like,  
18 custom firmware for the modem across different device  
19 categories?

20 MR. KAUFMAN: No, because, when we were  
21 looking at this for phones and for tablets and seeing  
22 that the same parts were being used, there was nothing  
23 in the record to suggest that when Qualcomm is just  
24 making these silicon chips, that they are having the  
25 foresight, oh, where is this chip going to end up.

1 For their purpose, it's much easier to have one set of  
2 firmware associated with that one piece of hardware,  
3 and wherever it goes, that firmware would still be  
4 there.

5 MR. GRAY: All right, great. Do you have  
6 any questions, Mr. Cheney, before we move on from  
7 laptops?

8 MR. CHENEY: No. I think you covered what  
9 we're interested in. I just wanted to make sure too  
10 that the language that we have in the proposed  
11 alternate -- well, you talked about 5G and 4G LTE.  
12 You really didn't want to limit the exemption to that  
13 language. It was sort of talked about throughout and  
14 then somehow and someways proposed in other places,  
15 but it looks like the actual language does not include  
16 that limitation, is that correct?

17 MR. KAUFMAN: I believe our language is 5G,  
18 4G LTE, or any other cellular connection capability.

19 MR. CHENEY: Well, I'm reading your text.  
20 It doesn't include 4G LTE and 5G. So I was just  
21 wondering if you're just indicating wireless  
22 telecommunications network rather than specifically  
23 naming the type of technology that's going to be used  
24 there, to keep it more broad.

25 MR. KAUFMAN: Oh, yeah, yeah. I'm sure,

1       yeah. I thought that the qualifier we had put in  
2       lapsed. Yeah, there's, I think, no reason to narrow  
3       it to the existing technologies. The wireless  
4       telecommunications network I think is sufficiently  
5       forward-looking and works for us.

6               MR. CHENEY: Okay, thank you.

7               MR. GRAY: Great. And, actually, maybe one  
8       more question before we move on. So one of the things  
9       that the Office has to do in this proceeding is both  
10      sort of look at the current state of the market and  
11      what is likely to happen in the next three years.  
12      How, if at all, should the Office think about the  
13      broad history of carrier locking devices in predicting  
14      what is likely or not likely to happen in the next  
15      three years?

16              MR. KAUFMAN: Yeah. So I think that what we  
17      have seen in the past is locking of phones, tablets,  
18      really any device that connects to a carrier, it's in  
19      the carrier's interest to lock you in. And as the  
20      number of form factors expands, whether it be laptops  
21      or anything else in our all devices category, there's  
22      simply no reason to believe that that practice is  
23      going to end and so nothing to suggest that carrier  
24      locking is a thing of the past. It's very much a  
25      thing of the present and the future.

1           MR. GRAY: And do you have any additional  
2 commentary you want to add beyond the written  
3 submission on the significance of the Department of  
4 Justice's Antitrust Division letter to GSMA?

5           MR. KAUFMAN: Yeah. I'm happy to elaborate  
6 on that a bit. When eSIM, which is basically a  
7 virtual SIM card rather than a physical SIM card that  
8 goes into phones, the promise of that technology was  
9 going to be that it was going to be easier for people  
10 to switch carriers. Unfortunately, that has not  
11 proven to be the case, and on many phones and other  
12 devices that have eSIM, the practice of locking  
13 persists, and that DOJ investigation ended up ending  
14 in sort of a voluntary agreement from the trade  
15 association representing the mobile carriers that they  
16 were going to play by the rules, but we have not seen  
17 that, as the adoption of eSIM has become more  
18 prevalent, that there's any reduction in the number of  
19 devices that a carrier locks. So we cited to that  
20 just to show that industry practice, even with the  
21 evolution from a physical SIM card to a virtual one,  
22 has not reduced the amount or prevalence of carrier  
23 locking.

24           MR. GRAY: Great. So now I'd like to move  
25 on to discuss the broader expansion, which is to allow

1 unlocking of any category of devices. So there was  
2 discussion of this during the last round in 2018, and  
3 I think, as we're all aware, the Office usually avoids  
4 broad use based exemptions, kind of like an all  
5 devices exemption here. In 2018, the Office actually  
6 did recommend an exemption for all devices,  
7 specifically in the context of the security research  
8 exemption. And so there, in the Register's  
9 recommendation, she pointed out that the proponents  
10 there had offered "substantial evidence of a  
11 legitimate need" to access the TPM protected software  
12 on a broad range of additional devices and systems.

13 So this is more of a two-part question  
14 perhaps, but (a) to what extent should the Office be  
15 considering that analysis in this request for Class  
16 10, and (b) compared to the extent that you're  
17 familiar with that record, can you compare and  
18 analogize the record we have for unlocking wireless  
19 devices to the security research of all devices and  
20 how that record compares and contrasts?

21 MR. KAUFMAN: Yeah. I'm more than happy to.  
22 So, on the first question, I think that that security  
23 research exemption that eliminated the device  
24 limitation is directly on point and very much similar  
25 to what we are asking for here. When the exemption

1 was granted for security research, the reasoning was  
2 that the use in all cases regardless of the device was  
3 tailored to a specific purpose. And, here, in the  
4 unlocking context, it's the same thing.

5 The only purpose of the unlocking exemption  
6 is to allow the owner or recycler of a device to  
7 switch wireless carriers and to circumvent a TPM for  
8 that and that's it. This is not an exemption that  
9 allows for anything else. It's very narrowly tailored  
10 just like the security research exemption. So, for  
11 that reason, given that we also have tailored it to a  
12 specific purpose, the fact that the purpose in all  
13 cases is non-infringing, we think that that is very  
14 strong evidence that helps our case for a broader  
15 exemption here.

16 MR. GRAY: Well, so maybe to dig into a  
17 little bit of that, you offered some, I think maybe we  
18 can call them illustrative examples of devices in this  
19 category. So there was mention of smart TVs, of  
20 drones, of augmented virtual reality, and then certain  
21 Internet of things. So, to go kind of through those,  
22 on the smart TV point, it seems like the material and  
23 the evidence you provided are really talking about  
24 future looking trends. There was an article about a  
25 potential partnership in South Korea between Samsung

1 and SK Telecom, but that article talks about the North  
2 American broadcast over 5G being "years away." I know  
3 there's the 5G.co website that's a UK website and  
4 seems to be hedging a little bit on when 5G broadcasts  
5 are going to be widespread. So what kind of record  
6 evidence do we have that in the United States  
7 specifically, which is where this proceeding is  
8 covering, there are or are likely to be both 5G  
9 enabled televisions sold on the market but  
10 specifically 5G enabled televisions that are in some  
11 way locked to a particular 5G provider?

12 MR. KAUFMAN: Sure. I wanted to answer that  
13 question directly, but I just want to reiterate that  
14 those were illustrative examples, and I don't know how  
15 helpful it will be to talk about each one  
16 specifically. If you wouldn't mind, I just want to  
17 talk about the broad features of these devices that  
18 allow us to sort of analyze all four at the same time.

19 The starting point for that analysis and  
20 really the barrier in 2018 was with these specific  
21 examples we proposed, the Register said that these  
22 were likely to be fair use for the same reasons, but  
23 what we did not fully establish is that it was  
24 technically feasible for any of these devices to be  
25 used on other wireless carriers.

1           With that in mind, I just want to go back to  
2           our example of that X55 modem that I mentioned was in  
3           all 5G laptops, that same modem is being deployed in a  
4           wide range of use cases, including IoT, including  
5           drones, including virtual reality headsets. And the  
6           way of sort of thinking about this that I think is  
7           most helpful to the Copyright Office is that chip --  
8           there's really only a few people making the chips that  
9           have 5G capabilities and that chip is what -- there is  
10          the setting that locks you to a carrier. And so just  
11          like for phones and tablets, when you reuse the chip,  
12          the analysis for the TPM was pretty likely going to be  
13          the same because there's really no reason that the  
14          firmware associated with a given piece of hardware is  
15          going to be different.

16                 So, in this all device category, while we  
17          give those specific examples, I think what is more  
18          helpful is to look at tracking where that chip is  
19          going. And what we're seeing is that that X55 modem  
20          ends up getting packaged into some module that is sold  
21          by various IoT providers, and that module that has  
22          that modem then can be deployed for all of the  
23          different use cases that we mentioned. So, as just  
24          one example, Sierra Wireless is one of these providers  
25          that sells these modules with that X55 modem. They

1 say that it's applicable to a wide range of IoT  
2 applications, such as industrial routers, home  
3 gateways, industrial and consumer laptops, video  
4 surveillance, and digital signage.

5           There are other providers that I could point  
6 to, but, really, the factor that is consistent across  
7 each and that is most important is what is the  
8 copyrighted work and what is the TPM protecting it.  
9 The record in all of the past cycles is that it is on  
10 the baseband processor or the modem itself, and that  
11 modem, if it's being deployed in all of these cases,  
12 in virtual reality, in TVs, in IoT, then going through  
13 it one by one seems to not be the most efficient use  
14 of time.

15           MR. GRAY: Okay. So maybe to kind of  
16 quickly summarize the argument then, that basically  
17 your argument is we have these baseband processors.  
18 It's just a hardware unit. You can put it in any kind  
19 of device you want. That might be a phone. That  
20 might be a tablet. That might be a laptop. That  
21 might be a smart toothbrush for some reason for people  
22 who want that. And in all the same instances, we're  
23 talking about the same firmware, which would have the  
24 same TPM to the extent that TPM is embedded in the  
25 firmware and not a different layer of the stack. And

1 so, from your perspective, that sort of means the  
2 analysis can flow across these devices because the  
3 actual widget where the analysis is being impacted is  
4 the chip that is communicating to the network and not  
5 ancillary aspects of the thing it is embedded in, is  
6 that right?

7 MR. KAUFMAN: That's, yeah, exactly right.  
8 So the -- yeah, nothing to add beyond that.

9 MR. GRAY: Okay, great. So I understand the  
10 argument and I appreciate it. But to maybe come back  
11 to the point on the last round, one way -- the concern  
12 that there is not evidence that the devices could, in  
13 fact, be used on another network is in some ways  
14 another way of asking is there an actual non-  
15 infringing use that could be made but for the 1201(a)  
16 exemption ban.

17 And so a related question to that is how  
18 many of these devices are, in fact, being manufactured  
19 with that modem. And so, in the smart TV example, the  
20 evidence that we seem to have is more about, in the  
21 future, people will want to put this modem in because  
22 it is cheap to acquire and it could have benefits in  
23 case you have bad Wi-Fi at home or something like  
24 that. And for drones, I think the evidence was more  
25 that Verizon had purchased a drone company and less so

1 that DJI or one of the other big drone manufacturers  
2 is actually currently using these modems. My  
3 understanding, and this is maybe a little bit more of  
4 a layperson understanding, but my understanding is  
5 that a lot of times that's using Wi-Fi Direct or some  
6 sort of Wi-Fi protocol rather than a cellular  
7 protocol.

8 And so, really, to stay on this question,  
9 the question for us is how many of these devices are  
10 specifically being manufactured or are likely to be  
11 manufactured with this modem, with this chip, and what  
12 is the evidence that the Office could look to if we  
13 needed to have a record to feel comfortable  
14 recommending an exemption that would be broad enough  
15 to cover all those devices either because we're doing  
16 an all wireless devices exemption or simply because  
17 we're expanding to a broader category or group of  
18 categories of devices?

19 MR. KAUFMAN: Sure, okay. There is an  
20 organization, the GSA, the Global Mobile Suppliers  
21 Association, that tracks all devices that have 5G  
22 capabilities and they do this on a monthly basis. In  
23 2019, there were 33 devices that were announced or  
24 commercially available with 5G in seven different form  
25 factors; in 2020, a year later, there were 253 5G

1 devices in 16 form factors; and in 2021, a year after  
2 that, the number was up to 703 devices in 22 form  
3 factors. So we've seen in just a span of two years  
4 the number of form factors increasing from seven to  
5 22. And included in those 22 form factors are  
6 laptops, cameras, TVs, drones, and, like I said, this  
7 includes both announced and commercially available.  
8 So that's just a lay of the land of the number of  
9 devices.

10 What's also important to note is that as the  
11 number of devices explodes and the number of form  
12 factors, there's still really only two or three people  
13 that make these chipsets: Qualcomm, a company called  
14 MediaTek, and then a few companies in Asia. But,  
15 really, in the U.S., Qualcomm is the dominant one.  
16 And then, if you track where that specific X55 modem  
17 is going, we did not have this information in the  
18 record and we did our best to get this, but we have  
19 subsequently learned a lot and are happy to provide  
20 that to the Office in post-hearing questions or  
21 whatever is most useful.

22 But, if you just look at where that X55 5G  
23 modem is, which we know is capable on all three  
24 carriers and which we know at least in certain  
25 contexts has been locked, all you have to do is just

1 look at the modules that incorporate it. So you have  
2 companies like Sierra Wireless, which deploys their  
3 modules across all sorts of IoT devices, you have a  
4 company called Telit and Quectel, these are big  
5 players in the IoT space and they give sort of the  
6 circuit that allows a given company to tailor it to  
7 bridges or whatever the application. But the module  
8 is device-agnostic, and all of these modules that we  
9 have seen are using the X55 5G modem.

10 So, yes, the record on TVs and drones did  
11 not establish that, but we do have that evidence and  
12 are happy to supply that to the Office.

13 MR. GRAY: All right. So, for example, the  
14 GSA reports you're mentioning, those are not in the  
15 written comments?

16 MR. KAUFMAN: Yes.

17 MR. GRAY: And do those subdivide by regions  
18 where things are sold, or is it just literally global  
19 suppliers?

20 MR. KAUFMAN: They are based in the UK, so  
21 it's global. But, yeah, it includes the U.S.

22 MR. GRAY: Okay.

23 MR. KAUFMAN: Yeah.

24 MR. CHENEY: Can I ask a question here --

25 MR. GRAY: Please.

1 MR. CHENEY: -- Mark, if I might?

2 MR. GRAY: Please.

3 MR. CHENEY: Mr. Kaufman, this has been very  
4 interesting and thank you for that last little bit. I  
5 think it might be helpful to sort of step back just a  
6 little bit and think about -- you've listed these  
7 possible 22 form factors, 16 form factors and so  
8 forth. So let's think about somebody goes and  
9 purchases one of these form factors, right, they're  
10 going to have to contact the carrier. They're going  
11 to have to connect to the carrier. At what point will  
12 that be locked? Is it locked when they buy the device  
13 or is it locked when they connect to the carrier?

14 We had some indication in some of the  
15 comments that somebody -- they bought a phone, it was  
16 unlocked, and then they took it to a carrier, and they  
17 flashed it and locked it, right. So can you describe  
18 that process? So, if somebody were to buy something  
19 with one of these chips, it doesn't necessarily mean  
20 that it's locked at the time, but go through that for  
21 me a little bit.

22 MR. KAUFMAN: Sure, okay. So say that  
23 you're purchasing the module directly from Sierra  
24 Wireless. At the time that you're purchasing the  
25 module, because part of the module I suppose is a slot

1 for the SIM card, they ask you, do you want us to put  
2 in an AT&T card, a T-Mobile card, or a Verizon card.  
3 And then that module is given to whatever company  
4 wants to create an IoT solution for some specific  
5 vertical, whether it be in industrial or healthcare,  
6 and they're going to get those devices. It's going to  
7 have that SIM card. And given the policies that we  
8 have seen from the different carriers, that SIM card  
9 just at the beginning as just a general matter appears  
10 to be locked. And the lock, remember, is in the  
11 baseband. The SIM card is talking to the baseband,  
12 but the baseband, without changing that setting, is  
13 not going to be able to communicate to other carriers.  
14 That's one case.

15 The other that's maybe a little more  
16 helpful, you can buy these modules directly through  
17 T-Mobile or AT&T or Verizon. So, if you're buying,  
18 say, one of those Quectel IoT modules from T-Mobile,  
19 it's going to have a T-Mobile SIM card. There's no  
20 ifs, ands, or buts about that. And T-Mobile's policy  
21 is, if you buy something from us, as a first order  
22 matter, it's going to be locked.

23 Last little point, AT&T sells IoT starter  
24 kits just like this, and we have heard that those  
25 devices come with the AT&T SIM card, and when someone

1 tries to use a different SIM card, they run into that  
2 barrier.

3 MR. CHENEY: Thank you. I think that was  
4 helpful. Mark?

5 MR. GRAY: Great. We're starting to run out  
6 of time, so I'm going to just ask one last question,  
7 which is, in the past, when we've done the non-  
8 infringement analysis, there has been a role for the  
9 facts and the nuances of the specific device, and I'm  
10 thinking particularly here about the discussion we had  
11 in 2018 about unlocking used devices. And there were  
12 a lot of considerations in 2015, in 2018 about the  
13 substitution effects and the market harms and which  
14 market harms are cognizable and which ones aren't.  
15 And so can you just explain why, in your view, that is  
16 not a barrier to having a single unifying non-  
17 infringement analysis for all wireless devices when  
18 the use is unlocking those devices?

19 MR. KAUFMAN: Sure. So we're talking about  
20 the copyrighted work here, software in the form of  
21 firmware. Firmware only has value when it's attached  
22 to a device. So what we have seen in the phone  
23 context and in tablets, in wearables is there's been  
24 no emergence or no market substitute of software via  
25 this exemption because it only has value when it's

1 attached to a specific device. So, under that fourth  
2 fair use factor about the effect on the market or  
3 value of the copyright work, we think that that effect  
4 is really negligible because we've never seen the  
5 emergence of a market for just the wireless device  
6 software itself.

7 In the phone context, why would that emerge  
8 in the context of firmware for -- really, it's the  
9 same firmware we're talking about, so that's one  
10 thing. And unlocking actually, we think, increases  
11 the value of these devices both to recyclers, who can  
12 get more value, and to consumers, who can switch  
13 carriers and prolong the life span of these devices.  
14 So that analysis, when we went through it device-by-  
15 device in 2015 and then in 2018, that never has  
16 changed because there's never been any evidence of a  
17 market for just the firmware itself.

18 MR. GRAY: Okay. Well, in that case, I  
19 think I'm going to give it over to Regan to close out.  
20 But thank you very much. This has been very helpful.

21 MS. SMITH: Thank you. I just wanted to  
22 check with Mr. Cheney and see does NTIA have any  
23 further questions? No?

24 MR. CHENEY: No further questions.

25 MS. SMITH: All right. Well, thank you and

1 thank you especially to Mr. Kaufman. I think you have  
2 the record for sort of bearing more questions than any  
3 other participant. And I think, on behalf of me and  
4 my colleagues, we want to thank you for your  
5 thoughtful and substantive contribution. It was very  
6 helpful. Thank you.

7 MR. KAUFMAN: Thank you for the opportunity.  
8 I really appreciate it.

9 MS. SMITH: Yeah, thank you. I think that  
10 is a wrap for this panel. So we -- you can turn off  
11 your video if you're done because we're going to segue  
12 directly into our audience participation segment.  
13 We've had a fair amount of people sign up for that,  
14 which is great. So, again, we're going to ask that  
15 comments please be limited to about three minutes, if  
16 you can, and to identify which topic or proposed class  
17 that you wish to comment on.

18 So I think what I'll do, participants have  
19 been notified about the -- provided a link to the  
20 audience participation session. But, to get started,  
21 it will be Willie Cade, then Jesse Spiegel, and then  
22 Brandon Butler, and I'll try to signal in advance as  
23 we get to who is next. So, Mr. Cade or maybe Ms.  
24 Cade, could you please turn on your video if you're  
25 there? Hello? You are muted, Mr. Cade, but when

1 you're ready, if you unmute, the floor will be yours.

2 MR. CADE: Thank you. I'm in Class 12,  
3 computer programs for repair. My name is Willie Cade.  
4 I'm a proud member of the Nebraska Farm Bureau. I'm  
5 speaking today in support of a continued exemption for  
6 agricultural equipment repair. Physical and logical -  
7 - or computer control, transformation of agricultural  
8 equipment has continued its rapid advancements since  
9 the last review. I believe it's fair to say that the  
10 previously recognized frustration by farmers of the  
11 lack of access to tools or skills to make use of the  
12 exemptions has significantly increased.

13 Producers' fleets of equipment is a  
14 substantial factor of their profitability. Given the  
15 high cost and necessarily long utilization of  
16 agricultural equipment, those fleets are now  
17 transforming to the point where realizing the intent  
18 of the exemption is essential. Indeed, the unusually  
19 high demand and record prices for used equipment can  
20 be partly attributed to the ease of repair with less  
21 computerization. As noted in this year's submission  
22 from the American Farm Bureau, AFBF, access to  
23 software tools for repair does not diminish the value  
24 to rights holders.

25 I'm heartened that the Registrar has

1 identified a legitimate concern for the exemption  
2 benefits engaged in activities such as automobile  
3 repair that simply do not implicate copyright in the  
4 analog world. Additionally, the change to the  
5 exemption from users to such items that were lawfully  
6 acquired is helpful. I'm struggling with the issue of  
7 necessary tools and how to maintain the integrity of  
8 the Act while simultaneously allowing for complete  
9 repair. Producers would greatly appreciate your  
10 guidance on how to thread this needle. Because  
11 software may need to be repaired and because repair  
12 may need to change software, I urge the Library to  
13 continue to grant the exemption for repairs both in  
14 agricultural and generally. Thank you.

15 MS. SMITH: Thank you, Mr. Cade. That was  
16 very helpful. We appreciate your testimony. If  
17 there's no questions, I guess we will go to the next  
18 person, which is Mr. Spiegel. If Mr. Spiegel can be  
19 promoted to a panelist and turn video on. Then we  
20 will have Mr. Butler and Mr. Khanifar will be next.  
21 Okay. Mr. Spiegel, if you can -- great, I can see  
22 you. Go ahead.

23 MR. SPIEGEL: Good afternoon. I'm going to  
24 be talking about Class 1. My name is Jesse Spiegel.  
25 I'm a student-attorney in the Glushko-Samuelson

1 Intellectual Property Clinic at the American  
2 University, Washington College of Law, and we have  
3 worked with the Joint Educators for many years in this  
4 proceeding.

5 Our society relies on video for everything.  
6 We communicate through video. We Facetime, we send  
7 gifts, younger people send Snapchat videos, and these  
8 often completely replace even speaking at all. So,  
9 when we want to learn how to do something, let's say,  
10 like, cooking a meal or fixing an electronic, most  
11 people don't open a recipe book anymore or an  
12 instruction manual, we go on YouTube. And, of course,  
13 now we've grown accustomed to working, socializing,  
14 and learning online using videos. So, clearly,  
15 effective education must also use more videos than  
16 ever to match how we now function in society.

17 And using clips from movies and television  
18 shows are a part of how we use videos to learn. The  
19 value of these clips can bring is recognized through  
20 the already granted exemptions, but the current  
21 exemptions include only a sliver of the educational  
22 experiences we are having online. We should be  
23 expanding access to education and not limiting it.  
24 And there are clear distinctions from the online  
25 learning platforms covered under the Joint Educators'

1 petition versus social media sites or entertainment  
2 platforms, where users are using or conceivably would  
3 use short clips.

4 Like TikTok, for example, is a platform  
5 where users are using clips to teach all kinds of  
6 ideas, but TikTok is not an online learning platform.  
7 Online learning platforms in our coalition have  
8 registered learners that enroll in courses to advance  
9 marketable and lifelong skills. They employ  
10 sophisticated digital protection measures, limit  
11 access to materials to students currently enrolled in  
12 courses, and make transformative uses of the clips  
13 constituting fair use. The Joint Educators' online  
14 learning platforms are not designed to entertain but  
15 instead operate for the purpose of providing  
16 educational instruction to enhance its users' skill  
17 sets. In other words, these platforms respect the  
18 goals of the DMCA.

19 And so we're aware of quality and access to  
20 education is a serious problem in America that  
21 implicates racial, class, gender, and age disparities  
22 that have long been identified but not remedied. So,  
23 thankfully, the chance to promote better equity in  
24 access to high-quality education through the ability  
25 to use the Internet to offer courses at all times and

1 in all settings, matching individual needs and goals  
2 has been gifted to us through technologies that allow  
3 platforms like LinkedIn Learning or Osmosis and Muser  
4 Media to provide educational opportunities we  
5 previously could only receive in the traditional four  
6 corners of a classroom that is accessible only to  
7 some, virtual or not.

8 So it's my view that we should celebrate  
9 this expansion of educational access, this very real  
10 opportunity in front of us to address inequities that  
11 exist in our educational system. Even by simply  
12 chipping away at them through this exemption and  
13 provide learners outside the box of K through 12 and  
14 accredited schooling needs to have the same chance of  
15 commentary and critical thinking skills that comes  
16 from analysis of short clips from movies and TV shows.  
17 Thank you.

18 MS. SMITH: Thank you, Mr. Spiegel. Can I  
19 ask a question about how you would conceive an online  
20 learning platform if TikTok, for example, would not be  
21 one? You know, how would you treat YouTube, for  
22 example? Because I know Khan Academy has a lot of  
23 videos on YouTube which I think are ways you can  
24 experience the teachings of Khan Academy. Where would  
25 you put that?

1           MR. SPIEGEL: Sure. I think YouTube is  
2 completely different from the platforms for several  
3 reasons. Users on YouTube rely on the viralability of  
4 their videos. They want as many people as they can  
5 possibly have to view their videos. That's how they  
6 make their money. And the platforms that we're  
7 advocating for, it's the opposite. They control the  
8 access to their information and their educational  
9 materials through a variety of means. Like, you have  
10 to enroll, you have to be currently enrolled in a  
11 course to access the materials, and once your  
12 enrollment ends, your access to those materials also  
13 ends, whereas on YouTube, things stay on in perpetuity  
14 and they want as many eyeballs, regardless of if  
15 you're a registered learner or not, to come and view  
16 those materials.

17           Also, anybody can upload something to  
18 YouTube regardless of if you're a sophisticated  
19 educator or not, whereas the platforms we are  
20 advocating for, they're run by educators with serious  
21 credentials and as well they're employing digital  
22 protection measures and really making sure that the  
23 content that they're using is only used for the  
24 educational purposes that they're advocating for,  
25 whereas Youtube is what I would call an entertainment

1 platform.

2 MS. SMITH: Okay. So I take it that your  
3 position is that if you are, for example, Khan  
4 Academy, you would have to sort of treat your use of  
5 the same content different depending upon what  
6 platform it is presented on with respect to 1201 and  
7 potentially an exception or limitation that they may  
8 be relying upon, is that correct?

9 MR. SPIEGEL: I would say so, yes,  
10 definitely.

11 MS. SMITH: Okay. Thank you. So, if we  
12 have no more questions for Mr. Spiegel, I think --  
13 thank you. Thank you very much. We appreciate you  
14 sharing your thoughts. And now we are looking for Mr.  
15 Butler to turn on his video. Hello.

16 MR. BUTLER: Hello. Hi, everyone. Good  
17 afternoon. Thanks for letting me join you briefly  
18 here. So I'm joining on behalf of the Software  
19 Preservation Network and just wanted to add a little  
20 gloss to some of the modifications that we proposed in  
21 our reply comments. So I was able to watch our team  
22 on Monday and they did a wonderful job, and I think  
23 they actually were able to communicate this, but, on  
24 reflection, it really seemed to me that there was a  
25 lot of concern, both from the Office and from some of

1 the industry folks, about the notion of a public --  
2 you know, a publicly accessible arcade, that anyone  
3 who finds -- who stumbles upon the collection could  
4 play online unmediated. And so I just wanted to  
5 reiterate that it's our view that the new concessions  
6 in our reply comments sort of add up to a situation  
7 where that shouldn't be covered by the exemption. So  
8 the requirements for being eligible that we adapted  
9 from the sort of revised 108 discussion document  
10 include that final requirement that reasonable digital  
11 security measures as appropriate to the activities be  
12 in place. And then we also suggested that, again, if  
13 this is a real concern, public access unmediated is a  
14 real concern, then also the language from 108 about,  
15 you know, having no prior notice or no notice that the  
16 requestor intends to use the material for any reason  
17 other than private study, scholarship, or research.

18           Given those two things together, it seems  
19 that, you know, an open -- a wide open unmediated kind  
20 of online arcade situation would be a situation where  
21 at least arguably the security systems in place are  
22 not adequate given that the purpose is to provide  
23 access only to people with, you know, that sort of  
24 private study type of an intent, right. We would be  
25 kind of on constructive notice that some people who

1       stumble across this stuff would not have that purpose  
2       and we wouldn't be doing enough to prevent those folks  
3       from having access if we just created a wide open  
4       online arcade.

5                So, if the rule that you're trying to craft  
6       is one that precludes that sort of wide open  
7       unmediated arcade, we think this rule is it. And we  
8       just wanted -- we thought that might be helpful to you  
9       because we could feel the angst in the virtual room  
10      over that possibility. And so one way to do that, if  
11      you're worried that that is not clear in the text of  
12      the rule, we'd also be open to kind of, I suppose, the  
13      equivalent of legislative history, right. In the  
14      Register's recommendation, you could explain that it  
15      is the Office's view, you know, that is the Office's  
16      interpretation of those two provisions in combination.  
17      And folks like us who try to give advice and guidance  
18      would take note of that and tell our clients and our  
19      institutions.

20               MS. SMITH: Thank you. Yes, we do consider  
21      the Register's recommendation, as well as the preamble  
22      to the final rule to be administrative guidance  
23      provided by the Office or the Library. Do either of  
24      my colleagues have questions?

25               (No response.)

1 MS. SMITH: Okay, thank you, Mr. Butler. So  
2 our next speaker will be Leticia Reynolds. If Ms.  
3 Reynolds could turn on her video? And then I just  
4 wanted to make sure those who are next are aware, so  
5 Sina Khanifar, if you're here, could you raise your  
6 hand so you can be promoted to a panelist? Then we  
7 also are looking for Kevin O'Reilly and Dennis Rigdon.  
8 All right. And here is Ms. Reynolds. Great. I can  
9 see you're here, but if you could please turn your  
10 video on if you would like to have video?

11 MS. REYNOLDS: So I'm not 100 percent sure  
12 my video is on. You just can't see me.

13 MS. SMITH: Okay, well, we can hear you, but  
14 you're a black square. So if you would like to --  
15 that's fine if you would like to go ahead. It might  
16 be a camera issue, but if you'd like, we can hang for  
17 a second if you would like to figure it out. Let me  
18 know.

19 MS. REYNOLDS: I don't want to take  
20 everyone's time, so I'll go ahead. It's a new  
21 computer, so maybe I haven't figured out all the kinks  
22 of it yet.

23 MS. SMITH: Sure.

24 MS. REYNOLDS: So my name is Leticia  
25 Reynolds. I'm the President of the Colorado

1 Association of Biomedical Equipment Technicians, and I  
2 am -- sorry, I've never done this before -- so I am  
3 coming to try to persuade that we look at service  
4 materials needed for medical equipment repair is  
5 exempted from some of the copyright rules. I'm  
6 talking about, like, service keys or programs that are  
7 used to do maintenance.

8 Medical device manufacturers are hiding kind  
9 of the essential repair information and tools behind  
10 the Digital Millennium Copyright Act. This has made  
11 it where biomedics across the country are unable to  
12 support and maintain devices that maybe they have  
13 within their facilities. In a time like the pandemic  
14 that we have suffered last year, it made it where  
15 critical devices, unfortunately, we weren't able to  
16 maintain without relying totally on the manufacturers,  
17 which could lead into a delay of patient care and  
18 expensive repair costs, having to send them out or  
19 wait on vendors. So I encourage you to exempt service  
20 -- tools needed from some of the copyright  
21 regulations.

22 MS. SMITH: Thank you, Ms. Reynolds. Does  
23 anyone have any further questions?

24 MR. CHENEY: Maybe just a clarification  
25 there. When you say that they are making those not

1 available, what do you mean? Are they locked on the  
2 device itself? Are they behind a pay wall that you  
3 have to pay extra money to get those? Can you  
4 describe just a little bit how -- why is it that  
5 you're not able to access those repair materials or  
6 manuals?

7 MS. REYNOLDS: Sometimes manufacturers will  
8 not even -- even if you've been to school, they won't  
9 provide those materials. Other ones, you have to go  
10 to school even if their device is your own -- that  
11 maybe a hospital or facility owns. And so, unless you  
12 pay extra additional money or a subscription fee, you  
13 don't have access to those materials.

14 And that can go with service literature as  
15 well. I've seen examples. I work on anesthesia units  
16 and I went to school, but those manufacturers wouldn't  
17 give you access unless you paid for a tool or software  
18 to get access to those manuals. And so then you're  
19 very limited on your ability to repair medical devices  
20 without tools maybe for maintenance, routine  
21 maintenance or even service events.

22 MR. CHENEY: Okay. That's helpful for me.  
23 Thanks.

24 MS. REYNOLDS: Thank you.

25 MS. SMITH: Yes, thank you. So next we have

1 Kevin O'Reilly. And then just to preview who will be  
2 up next, Dennis Rigdon, Gay Gordon-Byrne, and Paul  
3 Roberts, if you can raise your hand if you're an  
4 attendee so we can get ready to bring you up. And,  
5 Mr. O'Reilly, if you could turn on your video, we are  
6 ready to hear from you.

7 MR. O'REILLY: Great, thank you so much. My  
8 name is Kevin O'Reilly. I am a right-to-repair  
9 advocate with U.S. PIRG. Again, I'm here to talk  
10 about Class 12 and the repair of electronic devices,  
11 also particularly about medical equipment.

12 So the problem that exists today, as Leticia  
13 just touched on, is that qualified biomedical repair  
14 technicians, also known as biomed, are often locked  
15 out from being able to fix essential medical  
16 equipment, things like ventilators, imaging equipment,  
17 anesthesia machines, and all sorts of devices  
18 throughout the hospital. This has been a problem for  
19 a long time, but it's especially come under the  
20 microscope during the pandemic at a moment when  
21 manufacturers and biomed that work for the hospital  
22 or even independent service organizations all should  
23 have been working together. Many in-hospital and  
24 independent biomed continue to be locked out from  
25 servicing equipment, leading to delays of days, to

1 weeks, to sometimes over a month.

2           When you need -- a patient comes in and  
3 needs a ventilator or needs an MRI machine, there's no  
4 time to wait for an authorized or a really branded  
5 technician to come out and make the fix. So these  
6 software keys and software locks are a common way that  
7 it happens, and what we're really hoping is that we  
8 can remove the kind of fact that they're hiding behind  
9 the DMCA to shield this branded repair in order to  
10 deliver the benefit to patient care.

11           One thing that is worth noting is the FDA  
12 has looked into this and looked at whether or not  
13 there should be any regulation as far as in-house and  
14 independent biomedes go, and since 1996, they have  
15 decided not to undertake rulemaking on this account.  
16 So the FDA has purposely not taken any action on this.  
17 So we hope that by, you know, allowing for this  
18 circumvention that we won't allow the manufacturers to  
19 go further than what the FDA has called for.

20           MS. SMITH: Thank you, Mr. O'Reilly. I have  
21 a couple questions and my colleagues may too. Do you  
22 have any -- when you say the FDA has looked at this,  
23 can you provide any, I don't know, citation or any  
24 reference to that that is public?

25           MR. O'REILLY: Absolutely. So the FDA

1 issued a report in 2018. I can look up the name of it  
2 or also provide -- hold on, I've got it right here.  
3 So the report is called the FDA Report on the Quality,  
4 Safety, and Effectiveness of Servicing of Medical  
5 Devices. And then I can also follow up with the exact  
6 page number where they go into the specifics on the  
7 decision as far as rulemaking goes.

8 MS. SMITH: Okay, thank you. I think, you  
9 know, I think we have your contact information, and if  
10 we are going to be issuing a post-hearing letter, we  
11 would include you in the set of people who commented  
12 on this class that could receive one. But in your --  
13 do you have knowledge as to whether that report  
14 addresses copyright or the DMCA or software locks at  
15 all in the consideration?

16 MR. O'REILLY: So it doesn't look into  
17 software locks. It more looks at the decision of  
18 whether or not the FDA would impose the regulations  
19 that it imposes on medical device manufacturers on the  
20 basically third-party repairers, whether that's folks  
21 that work for the hospital, folks who work for  
22 independent repair organizations.

23 MS. SMITH: Right. So, in the determination  
24 not to commence a rulemaking, it doesn't seem to your  
25 knowledge that the FDA was imputing a reliance

1 interest upon the copyright laws in separately  
2 regulating third-party actions?

3 MR. O'REILLY: Yeah, to my knowledge, that  
4 wasn't the case.

5 MS. SMITH: Okay. But is it to your  
6 knowledge that it is the DMCA right now that is sort  
7 of serving as a but-for cause that is precluding this  
8 repair that you would like to see enabled?

9 MR. O'REILLY: Yeah, that's my  
10 understanding. We've seen cases where independent  
11 service organizations have found ways to break those  
12 service locks that exist and they have been pursued  
13 for litigation by the manufacturer themselves citing  
14 this. So we're worried about that and think that that  
15 shouldn't be the case because, ultimately, the ability  
16 of folks to do that allows for better patient care.

17 MS. SMITH: Thank you. Anyone else have any  
18 questions?

19 (No response.)

20 MS. SMITH: No? All right.

21 MR. O'REILLY: Okay.

22 MS. SMITH: Thank you.

23 MR. O'REILLY: Thank you very much.

24 MS. SMITH: Thank you. I think next we're  
25 looking for Ms. Gordon-Byrne, and then Paul Roberts,

1 Mark Schaffer, get ready. Raise your hand, please.  
2 But, Ms. Gordon-Byrne, if you could turn on your  
3 video. Okay, please go ahead.

4 MS. GORDON-BYRNE: Okay. Hello. My name is  
5 Gay Gordon-Byrne. I'm the Executive Director of the  
6 Repair Association. I'm here to talk about the  
7 exemptions for anything with embedded software in  
8 Class 12. And what I'd like to try to get across is  
9 that repair doesn't create piracy. It just returns  
10 equipment to function. And from the repair community  
11 perspective, the only really interesting thing that we  
12 need to do is be able to restore the equipment  
13 according to whatever it is, the tools that are  
14 provided by the manufacturer that are not made up.  
15 These are tools that are made for that purpose and  
16 they are being withheld, and that means that no matter  
17 what somebody wants to do, whether it's fixing a  
18 ventilator, a tractor, a cell phone, a refrigerator,  
19 they are limited.

20 And I don't see that there's -- I believe  
21 there should be a very strong standard for blocking  
22 repair and I think it should be associated with actual  
23 evidence of piracy because, absent piracy, there's no  
24 -- I don't see why we can't all fix our stuff. So  
25 games can't be played on a broken device. It means

1 that the owner can't use the games that they've  
2 lawfully acquired. It probably also drives that game  
3 station owner to go buy a new console to be able to  
4 play the games they've already purchased. And I think  
5 that that is a consequence that shouldn't be something  
6 that the Copyright Office creates. Same thing with  
7 being able to repair any other thing with an embedded  
8 device.

9 I looked back at the Napster experience  
10 because I was a parent of teenagers in that time, and  
11 Napster did go after their customers and they chose a  
12 couple of teenagers and they went after them and  
13 parents like me said, uh-uh, not doing that, take that  
14 stuff off, take that stuff away, and Napster went  
15 away. So I'm curious as to what the content providers  
16 are doing in terms of enforcement because it strikes  
17 me that they're really being kind of lazy. They could  
18 be building things that can be repaired without any  
19 kind of piracy. They could be authenticating in  
20 different ways if it's really happening. And if it's  
21 not really happening, especially with the technology  
22 that came out of the '80s and '90s, why are we  
23 blocking legal repair? Are we really making a  
24 difference? Is this something that should be done?  
25 And I just urge you to take a look at some of those

1 things, that it's very, very distortion to a legal  
2 repair market, and that's what we're trying to expand  
3 and not make more difficult. So thank you.

4 MS. SMITH: Thank you. Does anyone have any  
5 questions for Ms. Gordon-Byrne?

6 (No response.)

7 MS. SMITH: No? We appreciate your  
8 testimony. Thank you.

9 MS. GORDON-BYRNE: Thank you.

10 MS. SMITH: I think next we will have Paul  
11 Roberts. And then I just want to call out again the  
12 three people who have signed up that we've not been  
13 able to locate. In case you're -- if you become here  
14 raise your hand, but Sina Khanifar, Dennis Rigdon, and  
15 Mark Schaffer. But, Mr. Roberts, we're happy to see  
16 you and please go ahead.

17 MR. ROBERTS: Hi, everybody, can you hear me  
18 okay? Okay. Thank you very much for inviting me to  
19 speak. My name is Paul Roberts and I'm the founder of  
20 securepairs.org. We're a volunteer group of more than  
21 200 of the world's top information security and  
22 information technology professionals who support the  
23 right to repair, and I'm here today to argue in favor  
24 of the Class 12 exemption for repair of all software-  
25 enabled devices.

1           So the first thing I want to do is to offer  
2 my group to you as a resource on questions or concerns  
3 you may have about the intersection between technical  
4 protection mechanisms, TPMs, and cybersecurity. Our  
5 members in securepairs include experts and academics  
6 and independent security researchers in areas like  
7 hardware and software security, including some of the  
8 top researchers in areas like embedded device  
9 security, the security of medical devices, and more.  
10 And we are here really for you as a resource. You  
11 have my contact information, and I would be happy to  
12 connect you with any of our experts to answer, to do  
13 one-on-one sessions or Zoom sessions to field  
14 questions that you might have on these issues because  
15 I understand they are complex, you guys aren't  
16 cybersecurity natives, and so these can be challenging  
17 and confusing issues to contend with. And I really  
18 appreciate that, and I really welcome your efforts.

19           Let me just say briefly I think it's really  
20 important for all of you to understand, you know, kind  
21 of the nature of cybersecurity problems with embedded  
22 devices, connected devices, including, you know, let's  
23 say, medical devices or Internet of Things devices,  
24 smart home devices. The attacks and threats facing  
25 these devices have nothing to do with data stored or

1 secured by TPMs, data needed to access a device and  
2 repair it, replace a part and get that part to be  
3 recognized by the device, right.

4 Attacks on connected devices have to do with  
5 poor security and poor design or poor deployment of  
6 the device itself. For example, in 2015, TrapX, a  
7 security company, wrote a report called MedJack about  
8 a string of attacks on hospitals that targeted  
9 specifically -- the malware targeted connected medical  
10 devices. The problem there was that many of these  
11 medical devices -- this was in 2015 -- were running an  
12 operating system, Windows operating system that was  
13 almost 10 years old, and that's incredibly common in  
14 the medical device space and in other spaces.

15 So I think you need to understand that  
16 companies that are mature and healthy and robust in  
17 terms of information security have certain practices  
18 that they have enacted, internal security reviews,  
19 software security by design, default, and deployment.  
20 They have bounty programs where they reach out to  
21 independent security researchers and invite them in to  
22 test the security of their products.

23 They don't practice what many of these  
24 device makers are trying to push on you, which is  
25 security through obscurity, that if we just prevent

1 people from accessing our platform or understanding at  
2 all how it works, then we can keep it secure. And the  
3 reason that doesn't work is very simple, which is  
4 cyber criminals, whether those are nation state  
5 actors, like Russia and China, or just motivated  
6 criminals, for-profit type of criminal groups, are  
7 very resourceful and they're very determined and they,  
8 frankly, really don't care what the Library of  
9 Congress or the FTC or anybody else says the rules  
10 are. They're going to do what they need to do to get  
11 access to the systems that they want to access.

12 Who it disadvantages are white hat  
13 independent security researchers, repair technicians  
14 and professionals who want to access these devices for  
15 pro-social reasons, to extend their useful life, to  
16 conduct above-board security research into the  
17 cybersecurity, the device itself, so that the company  
18 can be aware of a cybersecurity flaw and issue a patch  
19 for it and improve the overall security of the entire  
20 connected device ecosystem.

21 So I just want to make really clear that the  
22 types of information that we're talking about that is  
23 -- that we need to -- that repair professionals and  
24 technicians need to get access to to replace parts,  
25 service problems, update software is not the type that

1 hackers are after or malicious actors or ransomware  
2 groups to carry out attacks, steal information, and so  
3 on. We know that there is a link between repair and  
4 these types of attacks because we already have an  
5 epidemic of these attacks, in healthcare, in smart  
6 home, in obviously critical infrastructure sectors as  
7 well, and this is happening independently of any  
8 broadly written right to repair.

9 So I really would encourage you to grant  
10 this exemption for repair and allow the very important  
11 work of repair professionals and technicians to go  
12 ahead and not to get suckered in to this kind of  
13 security through obscurity argument. Thank you.

14 MS. SMITH: Thank you, Mr. Roberts. Do we  
15 have any questions for him?

16 (No response.)

17 MS. SMITH: We appreciate your contributions  
18 today. Thank you.

19 MR. ROBERTS: Please do feel free to reach  
20 out if you want to connect with any of our experts.  
21 It's an excellent resource for you on some of these  
22 questions.

23 MS. SMITH: Okay, thanks. We appreciate it.  
24 At this point, our sort of solicitation of information  
25 is nearing conclusion, so if we issue post-hearing

1 letters, we'll include you on the class and we will  
2 also institute at the Copyright Office a process for  
3 ex parte communications where you can come and talk to  
4 us, but you need to disclose what you've said so that  
5 everyone who is interested in the area can follow  
6 along. Yep.

7 MR. ROBERTS: Great.

8 MS. SMITH: Okay, thank you.

9 MR. ROBERTS: Thank you.

10 MS. SMITH: All right. So I think the last  
11 person we've been able to locate is Mark Schaffer. If  
12 we can bring him up, please. And then I'm just noting  
13 two sign-ups, Dennis Rigdon and Sina Khanifar, if you  
14 are here, end up being here, raise your hand.  
15 Otherwise, I think Mr. Schaffer will be our last  
16 speaker. Hello, Mr. Schaffer, we're interested in  
17 hearing your contribution.

18 MR. SCHAFFER: Sure. Sorry about that. I  
19 was on double secret mute. It does happen. My  
20 apologies. So, yeah, thank you for hearing from me  
21 today. I know you've heard from several of us already  
22 and I just wanted to reiterate I think the need for  
23 making sure that owners of their products, either  
24 phones, laptops, tablets, whatever, they have the  
25 right to repair their products if there are software

1 issues or other issues that are preventing them from  
2 having the choices to be able to pick where they want  
3 to take their products to be repaired and to have  
4 their products repaired. So I don't -- I think, from  
5 a consumer standpoint, I'm speaking as a consumer of  
6 many of these products, I would love to be able to,  
7 hey, if my battery is dead or my screen is broken,  
8 that I have the choice to do that, that I don't  
9 necessarily have to send it back to the OEM or I am  
10 encouraged more along the lines of having to buy a new  
11 device. I think, from an environmental perspective,  
12 you don't want to have to go buy a new device when  
13 most of, 80, 90 percent of your device is still  
14 functioning.

15 So you need to have the ability to have  
16 those choices as the consumer, and I just think I'd  
17 like to see more support for that. I want to make  
18 sure that there isn't the ability to use DMCA and  
19 other legal, I guess, I wouldn't say loopholes  
20 necessarily, but legal issues around why I can't do  
21 that as a consumer. And I just would like to support  
22 seeing more support for repair and preventing hiding  
23 in some of these technical things that are available  
24 to some of the manufacturers today so that we can  
25 actually extend the life of our products and bring the

1 consumers more into the front, because it's very  
2 hard -- I engage in many standards and other things to  
3 try to improve these products, but it's very hard for  
4 the voice of the consumer to be heard.

5 So I do strongly appreciate your time today  
6 to hear sort of the voice of one of the consumers that  
7 loves his electronics but also gets a little  
8 frustrated with some of the limitations that are put  
9 upon them in making sure I can extend the life of  
10 those products. So thank you so much. I appreciate  
11 your time.

12 MS. SMITH: Thank you. The consumer  
13 perspective is certainly valuable. Thank you for  
14 coming today.

15 MR. SCHAFFER: Thank you. Sorry I'm late.

16 MS. SMITH: No worries. And I think we have  
17 found the next panelist too, so certainly no worries  
18 at all. Thank you, Mr. Schaffer. And if we can  
19 promote Mr. Khanifar. And I might not be saying that  
20 right. Hello.

21 MR. KHANIFAR: Hello there. Hi, everyone.  
22 First of all, I want to thank you all for the  
23 proceedings. I've been dipping in and out during my  
24 workday over the last few days, and I really  
25 appreciate the process that's being run and the care

1 and attention that's put in, been put into this.

2 My name is Sina Khanifar. I'm CEO of a  
3 company called Waveform. Honestly, historically, the  
4 part that I've been most interested in is on the  
5 unlocking side, but I missed most of the hearings this  
6 morning on that front. One thing I did want to kind  
7 of add there is it's just -- you know, I think with  
8 the rollout of 5G, we see companies like Apple  
9 building their own 5G chip sets and I really think  
10 that that integration is going to become broader and  
11 broader and that the need for unlocking in different  
12 types of devices is going to become greater and  
13 greater. So I think, as a consumer and as a  
14 technologist, I really encourage broadening those  
15 unlocking rules to apply to more types of devices.

16 And then secondarily, kind of reflecting on  
17 yesterday's hearings on the repair side of things, I  
18 run a company that sells wireless devices to consumers  
19 to help rural customers improve cell phone reception,  
20 and one of the biggest problems that we run into as a  
21 reseller is that our vendors don't take returns very  
22 often for the products that they sell us. And so we  
23 need to be able to repair those devices in order for  
24 them -- in order to not have to throw them away.

25 And the degree to which these software

1 devices are becoming basically pure technology, one of  
2 the most popular devices that we actually sell is this  
3 ray. It's an ASIC with custom firmware and custom  
4 software. It's very little of what we used to sell a  
5 decade ago, which was a ceramic-based filter that  
6 would amplify your cell signal. It's all software.  
7 And being able to repair those types of devices for us  
8 is just critical to honestly running a profitable  
9 business because these devices break on the regular.  
10 And so expanding, I think, the repair provisions or  
11 exemptions to all kinds of devices is really, really  
12 important for companies like mine. That's all.

13 MS. SMITH: Thank you. Any questions?

14 (No questions.)

15 MS. SMITH: Okay. Well, thank you for  
16 speaking today. It was very helpful.

17 MR. KHANIFAR: Thank you so much.

18 MS. SMITH: I think that then concludes the  
19 hearing for the 1201 rulemaking. And I think I  
20 mentioned a couple times, but the Office may issue  
21 post-hearing letters to participants in a particular  
22 class and then we will continue our analysis. We've  
23 appreciated -- got a lot of good information, I think,  
24 through these hearings. So we will continue analyzing  
25 and consulting with NTIA, and then the rulemaking is

1 on track to be completed in October of this year.

2 Thank you very much.

3 (Whereupon, at 2:28 p.m., the hearing in the  
4 above-entitled matter concluded.)

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REPORTER'S CERTIFICATE

CASE TITLE: Section 1201 Rulemaking Hearing

HEARING DATE: April 21, 2021

LOCATION: Washington, D.C.

I hereby certify that the proceedings and evidence are contained fully and accurately on the tapes and notes reported by me at the hearing in the above case before the Library of Congress.

Date: April 21, 2021



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Washington, D.C. 20005-4018

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