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SECTION 1201 ROUNDTABLE

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FRIDAY
APRIL 13, 2018

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The Section 1201 Roundtable met in the Mumford Room, James Madison Building, 101 Independence Avenue, SE, Washington, District of Columbia, at 9:00 a.m., Regan Smith, Deputy General Counsel of the U.S. Copyright Office, presiding.

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PRESENT

REGAN SMITH, Deputy General Counsel of the U.S.
Copyright Office
KEVIN AMER, U.S. Copyright Office
RAFI GOLDBERG, National Telecommunications and
Information Administration
EMMA KLEINER, U.S. Copyright Office
JOHN RILEY, U.S. Copyright Office
JASON SLOAN, U.S. Copyright Office

ALSO PRESENT

GENA CHAPMAN, Stratasys
ED FRIES
MEREDITH ROSE, Public Knowledge
MICHAEL WEINBERG

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CONTENTS

| | |
|---------------------------------|-----|
| Call to Order | 4 |
| Opening Remarks | 4 |
| Proposed Class 12 | 4 |
| Computer Programs - 3D Printing | |
| Audience Participation | 62 |
| Adjournment | 105 |

| <u>Exhibit No.</u> | <u>Page</u> |
|--|-------------|
| 12A Solution Guide Certified..... | 20 |
| Additive Manufacturing for Aircraft Interiors | |
| 12B Test Part Designed to Show..... | 59 |
| Different Tool Paths | |
| 12C | 60 |
| 12D Airplane Piece..... | 61 |

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P-R-O-C-E-E-D-I-N-G-S

(9:02 a.m.)

MS. SMITH: Okay, I think we are all ready to get started? Seeing no objection, we'll do that.

So, this is our fourth day of hearings for the section 1201 rulemaking. This is the seventh rulemaking process and this topic is Class 12: 3D printing.

The Register of Copyrights has already determined she can presumptively recommend renewal of the current exemption. And so we're focused mainly on expansions or modifications to that language.

And before we dive into the 3D printing issues, I did want to say if there's anyone in the audience who wishes to participate, any audience participation, and there may not be, but we have a sign-up sheet in the back if you could add your name to it.

If possible, we're going to try to bump that up, being mindful of our time. So, we will introduce ourselves here and then have the participants introduce themselves.

If you would like to speak tip your

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1 placard up or if there's two of you, just indicate
2 and we're trying to just focus on homing in on the
3 issues based on your written comments.

4 So, Mr. Sloan, if you want to introduce
5 yourself?

6 MR. SLOAN: Yes, I'm Jason Sloan,
7 Attorney-Advisor in the General Counsel's Office
8 at the Copyright Office.

9 MR. AMER: Kevin Amer, Senior Counsel in
10 the Office of Policy and International Affairs at
11 the Copyright Office.

12 MS. SMITH: And I don't recall if I
13 introduced myself but I'm Regan Smith, the Deputy
14 General Counsel.

15 MR. RILEY: John Riley,
16 Attorney-Advisor, Copyright Office.

17 MS. KLEINER: Emma Kleiner, Ringer
18 Fellow with the Copyright Office.

19 MS. GOLDBERG: And I'm Rafi Goldberg,
20 I'm a Policy Analyst at the National
21 Telecommunications and Information
22 Administration, or just NTIA.

23 MS. SMITH: Mr. Weinberg, do you want to
24 introduce yourself and also explain any affiliation
25 or interest you have with 3D printing invention?

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1 If you press the button, it should turn
2 on. Is it working?

3 MR. WEINBERG: So it does. I'm Michael
4 Weinberg, I'm here in my personal capacity when I
5 was working at the public interest organization,
6 Public Knowledge.

7 I submitted earlier versions of this
8 petition in earlier rounds and so I am continuing
9 it even though I am no longer connected with Public
10 Knowledge.

11 MS. SMITH: Do you have any financial
12 interest with the 3D printing industry or anything?

13 MR. WEINBERG: I am the General Counsel
14 of Shapeways, which is a 3D printing company. To
15 be clear, Shapeways takes no position on this issue
16 but I am employed by Shapeways.

17 MS. SMITH: Okay, but you're here in
18 your personal capacity.

19 MR. WEINBERG: Absolutely.

20 MS. SMITH: Okay, thank you.

21 MS. CHAPMAN: And I'm Gena Chapman, I'm
22 here representing -- sorry, now it's live. I'm Gena
23 Chapman, I'm here representing Stratasys.

24 We're a manufacturer of 3D printers and
25 I am employed by Stratasys as its in-house Senior

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1 IP Legal Counsel.

2 MS. SMITH: Okay, thank you.

3 So, to tip it off, maybe, Mr. Weinberg,
4 you could explain what types of non-infringing uses
5 you think are being prevented or hamstrung by the
6 language in the current exemption?

7 MR. WEINBERG: Yes, thank you, and thank
8 you, I really appreciate the structure of this
9 process this time around.

10 I appreciate that there's the
11 opportunity to ask for a renewal of the original
12 exemption request and that that was a streamlined
13 process.

14 And we're now able to focus on I think
15 what I hope is a relatively modest expansion of the
16 request.

17 And so the reason that I'm asking for
18 an expansion of the request, my concern with the
19 language as written in the previous exemption is
20 that it is not -- it's language that involves a great
21 deal of ambiguity and does not involve a great deal
22 of clarity around when the exemption could actually
23 apply.

24 So, I have two sets of concerns and then
25 I'll talk briefly about what's the result of those

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1 concerns.

2 First of all, it appears that the
3 additional language that was included in the request
4 that I'm requesting to be removed was driven by a
5 concern that was actually not voiced by the
6 regulatory agency at the time.

7 The 2015 exemption cites a letter from
8 the FDA that purported to raise concerns about the
9 use of 3D printers in relation to medical devices.

10 In fact, that letter I think, upon close
11 reading, did not raise the concerns that are used
12 to justify the exemption.

13 And to the extent there are other
14 concerns related to airline safety or other medical
15 devices, those concerns may or may not be
16 legitimate.

17 I'm honestly not in a position to
18 evaluate them, and I think that those concerns are
19 well beyond the scope of this proceeding and the
20 Copyright Office generally.

21 The second thing is that the language
22 creates a distinction between commercial and
23 non-commercial uses of 3D printers that simply is
24 not sustainable in every-day use.

25 This was actually raised as a question

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1 during the last proceeding and both myself, Public
2 Knowledge, and Stratasyys weighed in and made it
3 clear that this distinction is very hard to make.

4 Because first of all, an individual
5 printer can be used at one moment for a personal
6 use, for another moment, in commercial use, and the
7 way the language is tied, it appears to attach to
8 any printer that is used to create an object that
9 is regulated in any way.

10 MS. SMITH: So, I want to put a pin in
11 questioning on that contention for this section and
12 go back to whether you have responses to my question,
13 which is are you aware of any non-infringing uses?

14 Or what are the things that are being
15 precluded from using alternative feedstock by the
16 language in the current exemption?

17 MR. WEINBERG: Yes, I apologize.

18 So, the uses of alternative feedstock
19 is, again, as we said in 2015, I don't actually
20 believe it is prohibited by section 1201 but there's
21 enough ambiguity that we requested that the
22 exemption be granted, because there is remaining
23 ambiguity.

24 The behavior that is being prohibited
25 or prevented is the general use of people being able

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1 to what they believe is jail-breaking their 3D
2 printer.

3 So, any 3D printer that is owned by an
4 individual where they want to bring third-party
5 feedstock, the ambiguity around the language in the
6 current exemption can prevent them from doing that
7 because it is very hard to determine if they fall
8 within or without that exemption, because of the
9 way the language applies to every-day use.

10 MR. RILEY: I think there was some
11 confusion, at least with Stratasys, because -- just
12 to be clear -- are you proposing to eliminate all
13 the language after "provided however" in the
14 existing exemption?

15 MR. WEINBERG: Yes, the language that I
16 want to remove is the language that I would describe
17 as the qualifying language in the exemption. And
18 the goal is to remove that qualifying language.

19 I think the specifics of how that is
20 removed is something that there is space to
21 consider.

22 But the idea that it is qualified by the
23 language that it "shall not extend to any computer
24 program on a 3D printer that produces goods or
25 materials for use in commerce, the physical

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1 production of which is subject to legal or
2 regulatory oversight or a related certification
3 process, or where the circumvention is otherwise
4 unlawful."

5 And I think the, "or where the
6 circumvention is otherwise unlawful", is language
7 that I think adds ambiguity.

8 But the primary concern is the language
9 that precedes that, that talks about any goods or
10 materials that are used in commerce that are subject
11 to legal or regulatory oversight, which can easily
12 be read broadly enough to include all things.

13 MS. SMITH: Well, I think that that
14 language was put in based on the record in 2015 and
15 the record was based on a lot of testimony that
16 users, maybe the user is active in the makers'
17 movement or so forth wanted to use alternative
18 filaments for, you know, innovative purposes.

19 But none of that was really relating to
20 purposes subject to what we saw as any regulatory
21 oversight.

22 It would be helpful if you could narrow
23 in on you say the language is ambiguous, but any
24 tangible examples, because I don't think there's
25 a desperate need to make alternative airplane parts.

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1 MR. WEINBERG: No, as someone who is
2 flying later on today. So, the distinction between
3 individuals in the maker movement and individuals
4 who are engage in commerce is one that is not a clear
5 distinction.

6 And so when we talk about evidence in
7 the record of people who are involved in the maker
8 movement being negatively impacted, those people
9 are often engaged in commerce.

10 MS. SMITH: Well, I guess the language,
11 the current language doesn't just say for use in
12 commerce. It doesn't say if you put what you made
13 on Etsy, you can't do it. It says, "the physical
14 production of which is subject to legal or
15 regulatory oversight or" related certification.

16 So, I think the Office saw that as
17 limiting and we would like to understand why that
18 is an obstacle, I guess, to non-infringing uses and
19 demonstrating that there is an adverse effect.

20 MR. WEINBERG: Of course.

21 So, I think the language related to
22 "subject to legal or regulatory oversight," all
23 items that are in the stream of commerce are subject
24 to legal or regulatory oversight.

25 I mean, there are legal regimes that

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1 govern everything that is used in commerce.

2 And so to the extent that language was
3 intended to narrow the scope of this exemption to
4 the exemption to things that are regulated in a sense
5 by the FDA or the FAA, I think the specificity of
6 that language is lacking.

7 And it doesn't provide the clear lines
8 of subject to oversight by a specific regulatory
9 agency or oversight by a specific protocol.

10 And I think part of the reason for the
11 breadth of that language, I wasn't there to draft
12 it, is that it is in fact very hard to draft language
13 that specifies those types of regulatory regimes
14 in a way that would be inclusive of what you might
15 want to cover, but exclusive of things that you would
16 have no intention of covering.

17 And the good news is that that's an
18 exercise that is very complicated but is largely
19 unnecessary because those objects are going to be
20 regulated by those existing regimes.

21 And so it is unlikely that the safety
22 of airline parts or the safety of medical devices
23 -- those don't turn on whether or not the 1201
24 exemption applies to machines that could
25 potentially be used to manufacturer them.

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1 MR. RILEY: So, going back to our
2 original question, and maybe if we could flesh this
3 out a little bit, specifically, are people who are
4 using this exemption looking to make airplane parts
5 or medical devices? Is an exemption that
6 specifically talked about the FAA or FDA better than
7 what we have now? Can you tell me more about your
8 uses?

9 MR. WEINBERG: Yes, I think that I don't
10 have the survey data of all 3D-printer users. And
11 I'm not suggesting that you are requesting that but
12 I don't have that information.

13 I think that the answer is it may but
14 I don't understand the Copyright Office's role of
15 carving out things related to those types of
16 regimes.

17 I mean, I'm not sure --

18 MS. SMITH: Well, I'll say again that I
19 think we're trying to determine whether exemptions
20 are warranted based on the non-infringing uses that
21 people come forward and say they would like to engage
22 in.

23 And I think that was a primary driving
24 factor in why the current exemption is how it is.

25 And also, I don't mean to cut you off

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1 now but I do want to say if Ms. Chapman ever wants
2 to jump in, there's only two of you, so just --feel
3 free to jump in. You or --

4 (Laughter.)

5 -- Mr. Weinberg.

6 MR. WEINBERG: Yes, so I think it's
7 unclear, right? I mean, there is a movement of people
8 who are making medical devices with 3D printers.

9 And I think as the record from the last
10 proceeding made clear, as Stratasys' own comments
11 in response to questions the last time around made
12 clear, there's a spectrum and range of users that
13 are very hard to differentiate from the individual
14 who is making stuff simply for themselves at home,
15 all the way to large industrial players.

16 And so you do see smaller companies who
17 are doing things in the medical field with 3D
18 printers.

19 I mean, the FDA has been having a
20 year-long review of that process where they are
21 using printers in ways that are connected with
22 medical devices.

23 And while I think it is true that it is
24 possible that if you were to use unapproved
25 third-party materials in a 3D printer, it could

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1 create problems.

2 It's also true that it could not create
3 problems and that the manufacturers, the users of
4 these machines should have the leeway to determine
5 if they're able to meet the FDA standards for the
6 devices they're making on the machines.

7 It's unclear to me why a 1201 prohibition
8 against that process, what purpose that would serve.
9 And similarly with the FAA, if --

10 MS. SMITH: I appreciate your point
11 philosophically, but our task here under section
12 1201, since there is a blanket prohibition on the
13 circumvention of access controls protecting the
14 copyrighted work, there just is, we can recommend
15 and the Librarian can adopt exemptions for that just
16 based on non-infringing uses.

17 So, that's what we're here looking at
18 as part of this proceeding. So, the more you can
19 tie it into the standard that we're trying to look
20 at, the more helpful it will be. Thank you.

21 MR. WEINBERG: Sure, I appreciate that,
22 and if it is helpful, I'm happy to follow up with
23 specific examples or other users.

24 I think that those users as a class
25 exist, and if there's a level of documentation

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1 that's necessary to find them, I think that that
2 is a reasonably straightforward process.

3 MR. RILEY: Ms. Chapman, did you want to
4 jump in?

5 MS. CHAPMAN: Sure, so Stratasys
6 disagrees with Mr. Weinberg that the current
7 standard is ambiguous or unworkable.

8 We find that it's clear that it was well
9 thought-out, that it was drafted after fully
10 considering the record, after even soliciting
11 post-hearing remarks both parties.

12 So, we believe that the previous record
13 is very well developed.

14 There was evidence and testimony
15 provided by Mr. Pat Carey on behalf of Stratasys
16 as to the role that the TPMs play in providing a
17 closed system, and the safeguards that that provides
18 in the manufacturing industry and regulated
19 industries such as aviation.

20 And there was remarks given on the record
21 then which are true today, and in fact, even more
22 true today from the advancements of the use of
23 printed parts in those industries over the last few
24 years.

25 So, the evidence of the record today is

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1 even more strongly in favor of continuing the
2 exemption with the qualifying language, rather than
3 removing that. And there hasn't been any evidence
4 presented of persons who are harmed.

5 So, as the petitioner seeking to expand
6 an exemption, needs to show that there are users
7 who are adversely affected and there is some
8 substantial non-infringing use that is being
9 hindered.

10 So, I don't think there's been any
11 evidence of this.

12 There's maybe just some hypotheticals
13 of persons who may exist, but I don't think there's
14 any evidence that there's a user who owns and
15 operates a 3D printer for both hobbyist or
16 non-commercial uses, and is also producing parts
17 that are used for commerce and subject to legal or
18 regulatory oversight.

19 I don't know of any such users who are
20 adversely impacted.

21 MS. KLEINER: Can you talk more about
22 what are the goods and materials for use and commerce
23 produced on 3D printers that are subject to legal
24 or regulatory oversight, or a related certification
25 process?

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1 And can you give additional examples,
2 please?

3 MS. CHAPMAN: Sure. Mr. Weinberg
4 raised the medical devices.

5 This is something really not in my area
6 of expertise because we've been less involved in
7 the certification proceedings there and with the
8 regulation.

9 Our clients are involved in that, but
10 personally, I am probably not an expert to explain
11 what those rules are.

12 And certainly, the FDA has considered
13 and has issued some guidelines on the use of 3D
14 printers in that area. And again, it's more of our
15 end users who are doing that.

16 So, I probably would be speaking beyond
17 my expertise if I gave examples on that.

18 But I think that there aren't any examples on
19 the record of persons who are producing those
20 commercial goods for medical devices that are also
21 printing things in an unregulated industry.

22 So, I think that's important to keep in
23 mind. But those, certainly medical devices, would
24 be one area of the goods that are under regulatory
25 oversight.

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1 Another is in aerospace and that's an
2 area that Stratasy's has been very involved with,
3 supporting its customers.

4 And in fact, over the last three years,
5 we've developed and introduced a certified aircraft
6 interiors solution we call it, where Stratasy's has
7 worked very closely with the regulatory industries
8 in getting our materials approved and demonstrating
9 that they meet the specifications in those
10 industries.

11 So, we did, in our briefing, cite two
12 materials that are posted on the Stratasy's website.
13 And I also have a hand-out that I can give you if
14 we want to mark it as an Exhibit that further
15 explains that particular offering that we have.

16 And it really explains the end to end
17 of how the material --

18 MS. SMITH: Maybe you should pass around
19 that now --

20 MS. CHAPMAN: Okay, sure.

21 MS. SMITH: -- and call it Exhibit 12-A,
22 if you're going to be speaking about it now. If you
23 could show it to --- do we have it?

24 (Whereupon, the above-referred to
25 document was marked as Agency Exhibit

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1 12-A for identification.)

2 MS. CHAPMAN: So, it explains the end to
3 end of how the consumable materials, the software,
4 and the printers are all so closely tied in an
5 integrated and closed system and the importance of
6 that.

7 How should we go about marking it as an
8 Exhibit?

9 MS. SMITH: Ok so, this is Exhibit 12-A
10 called Solution Guide Certified Additive
11 Manufacturing for Aircraft Interiors, and we'll
12 make sure that the court reporter has a marked copy.
13 Ok.

14 MR. RILEY: I had a question about some
15 of the evidence you submitted regarding the FDA.
16 We talked about this leapfrog guidance which is not
17 a regulation and it's not binding.

18 How are we to interpret that?

19 MS. CHAPMAN: So, that would be
20 non-binding on the users of printers making goods
21 for medical devices.

22 So, I guess that would be not, maybe,
23 to the level of legal regulation but there certainly
24 are regulations governing, that are binding, that
25 govern medical devices and what apply, whether

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1 you're manufacturing those on a 3D printer or
2 otherwise.

3 MR. RILEY: So, is that something where
4 there is legal or regulatory oversight or a related
5 certification process?

6 MS. CHAPMAN: So, in my view, yes, the
7 medical devices would be subject to legal and
8 regulatory oversight and then would, thus, be within
9 the qualifying language of the current exemption.

10 So, in other words, by removing that
11 qualifying language, as has been urged by Mr.
12 Weinberg and the Petitioners, that would allow users
13 printing the medical devices to circumvent the TPMs.

14 MR. RILEY: So, Mr. Weinberg asserts
15 that maybe the existing exemption and that limiting
16 clause is over-broad.

17 And we have some examples of the FDA,
18 maybe the FAA; are there any additional examples
19 to offer in terms of regulatory language?

20 MS. CHAPMAN: I don't have additional
21 examples of a regulation of parts, but I think what
22 we're looking for is examples of users who are
23 adversely impacted by that language in the
24 exemption.

25 So, in other words, those who are

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1 adversely impacted by the use of TPMs on 3D printing
2 materials in regulated industries. And I don't
3 know of any examples of such persons.

4 MS. SMITH: What would you say in
5 response to -- I guess I'll paraphrase Mr.
6 Weinberg's contention of what a regulated industry
7 is, or a regulated process in commerce is. It's hard
8 to figure out whether you fall in or out of that.

9 You may be just making a dish or
10 something, or if it was a sculpture and didn't
11 involve 3D printing, you might not have to worry
12 about, but it's unclear whether you could make use
13 of this exemption in that example.

14 MS. CHAPMAN: Right, so the language
15 extends to 3D printers that produce goods or
16 materials for use in commerce.

17 So, for one thing, if you were printing
18 something for your own use as a maker or something,
19 it wouldn't apply.

20 But let's say you're putting it on,
21 selling something on Pinterest or something, maybe
22 that would be an example. This isn't in the record.

23 We haven't heard from any of these
24 people, but let's say there's somebody making
25 something and selling it on Pinterest, I wouldn't

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1 consider that to be something that would be subject
2 to legal or regulatory oversight.

3 So, I would not consider that within this
4 -- I would consider that to already be exempt.

5 And you know, unless it's medical
6 devices or something, I think it's pretty clear you
7 know if you're producing goods in a regulated
8 industry, you know that you're doing so.

9 And we haven't heard from any persons
10 in those industries who object to this language.

11 MS. SMITH: Mr. Weinberg, did you want
12 to respond?

13 MR. WEINBERG: I would again argue that
14 if you are selling something on Pinterest, you are
15 subject to a large number of regulations and --

16 MS. SMITH: Are you subject to a
17 regulation over the physical production of the thing
18 you're going to be selling?

19 MR. WEINBERG: Those extended -- If you
20 were to manufacture something that was defective
21 and sell it on Pinterest, then you would be liable
22 under a legal or regulatory regime.

23 And I also want to clarify that the
24 language as it is written right now covers a 3D
25 printer that produces those goods.

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1 And so it's not as if you had one 3D
2 printer that was sometimes producing things that
3 were for purely personal uses and other times, being
4 used to produce things for commercial purposes
5 however we're defining that within the scope.

6 You would potentially be in a situation
7 where if you were using that material for one purpose
8 and not another, you'd be in an ambiguous space.
9 And I do -- it looks like you have a question?

10 MS. SMITH: I wanted to just see whether
11 Ms. Chapman knew whether the 3D printers -- whether
12 that's true, that you'd use one printer for the
13 different purposes Mr. Weinberg is saying. Or
14 maybe you know?

15 MR. WEINBERG: So, in the 2015
16 proceeding, the Copyright Office actually asked for
17 a distinction between commercial and
18 non-commercial.

19 And their, Stratasys', response was the
20 first heading is there's no meaningful way to
21 differentiate between commercial and other
22 non-commercial uses of 3D printers.

23 And it goes on to describe in detail
24 today, I'm quoting again, "an individual 3D printer
25 may be used for, 'personal' or non-commercial use

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1 one day, and for a commercial purpose the next."

2 For example, engineers and designers
3 may have 3D printers in their homes, but use them
4 for inspiration, experimentation, and prototyping
5 that blended into their work.

6 The same 3D printer may be used for other
7 household members, for personal hobbies or school
8 projects.

9 The point is that these are
10 general-purpose machines, and just as you might use
11 your computer or even a work computer to do things
12 that are a wide range on a spectrum of commercial
13 and non-commercial purposes, these 3D printers are
14 being used.

15 You think of 3D printers that are in
16 libraries today, that are in maker's spaces in
17 libraries.

18 Very often, those are explicitly
19 advertised as places to come and do your own
20 projects, or potentially start a small business.

21 MS. SMITH: So, the act of
22 circumvention, is it done each time you need to use
23 the alternative filament or, you know, just once,
24 okay, you've broken it so it's open?

25 MR. WEINBERG: It would really depend on

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1 the TPM being used.

2 I think that the canonical TPM that was
3 kind of used as the model for this is a chip
4 verification system, in which case you would be
5 breaking the TPM every time you load new filament
6 in. But again, that could potentially vary based
7 on what's going on.

8 And I think just to reiterate the point,
9 the concerns that are being raised here are very
10 far afield from the scope of the Copyright Office,
11 right?

12 We're talking about the integrity of the
13 airline part production process, we're talking
14 about medical safety.

15 These are not concerns that are grounded
16 in the types of concerns that motivate copyright
17 law.

18 And they're not the types of concerns
19 that -- I think that a petitioner should have the
20 burden of being able to refute in a proceeding such
21 as this.

22 MS. CHAPMAN: So, I wanted to jump in and
23 highlight that the language that was adopted in the
24 2015 exemption, it didn't follow the lines of the
25 commercial versus non-commercial use that was

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1 briefed by the parties.

2 So, I think the Copyright Office is
3 really quite thoughtful and really prescient in its
4 decision-making in that it focuses on the 3D printer
5 and whether it produces goods or materials for use
6 in commerce, in-- subject to legal and regulatory
7 oversight.

8 So, that's different from just a
9 breakdown on a commercial versus non-commercial
10 use, because in the case of somebody with a home
11 business selling the printed parts, that could be
12 a commercial use.

13 And so that's sort of the context in
14 which we were responding on whether that was a
15 principled differentiator.

16 So, I think the work that was done in
17 2015, it really did result in something meaningful
18 and an exemption that makes sense and is
19 appropriately directed to the types of uses that
20 the Office and the Register were concerned about
21 in 2015.

22 Stratasys had, in that proceeding, we
23 had objected to the exemption in full. It was the
24 first time it had been considered and we objected
25 to it.

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1 And then when it was narrowed down in
2 the post-hearing questioning was sort of getting
3 towards how could it be written to differentiate
4 the result of the work that was done.

5 It is workable, it's not ambiguous, and
6 it sort of dug deeper than just commercial versus
7 non-commercial. And I think it quite
8 appropriately defines the goods in regulated
9 industries.

10 And there aren't any examples given on
11 the record in 2015 or today of persons making parts
12 on a printer that's used to print things for
13 regulated industries and also for, you know, a
14 non-commercial hobbyist or home use.

15 That just isn't happening.

16 MR. RILEY: Mr. Weinberg, I wanted to go
17 back to -- there's some discussion about the FDA.

18 We had that leapfrog guidance and I
19 wanted to get your reaction on how to interpret that
20 and also how to interpret the letter that the FDA
21 sent to the Copyright Office, which did discuss 3D
22 printing but was not in response to a 3D printing
23 question, it was in response to a medical device
24 question.

25 Was it important for the FDA? How are

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1 we to interpret both those FDA actions?

2 MR. WEINBERG: Yes, thank you for the
3 question. So, I think that in terms of interpreting
4 the leapfrog guidance, I think the primary way to
5 interpret that is that the FDA is fully aware of
6 its technology and has instituted a process to
7 examine the technology within its regulatory scope.

8 And so to the extent that the Copyright
9 Office would be motivated to act because it was
10 concerned that the FDA was somehow ignoring or
11 abdicating its responsibility in connection with
12 3D printing, the leapfrog guidance makes it fairly
13 clear that the FDA is deeply involved in a review
14 process.

15 And again, I'm not well positioned to
16 evaluate the effectiveness of that process but I
17 will defer to the FDA that this is enough to say
18 that it is something that they are focused on and
19 fully engaged in.

20 In terms of the letter, I believe, and
21 I have the letter here, my understanding of the
22 letter is that it was written in response to
23 questions from the Copyright Office regarding a
24 number of different exemptions.

25 So, it was written partially in response

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1 to the existence of the request in 2015 for this
2 exemption.

3 Looking at the letter, it's a five-page
4 letter, the vast majority of it focuses as you would
5 expect on the exemption specifically related to
6 medical devices.

7 And within the context of 3D printing,
8 towards the end, it's the fourth point, the FDA says
9 regarding 3D printing, manufacturers who utilize
10 3D printing to alternatively manufacture devices
11 need to ensure that their products are safe and
12 effective for their intended use.

13 Which, again, I interpret the FDA as
14 saying we regulate medical devices and we have
15 existing regulations that are divorced from the
16 manufacturing method.

17 And we have that regulatory regime. If
18 you make something that is a regulated medical
19 device, if you use a 3D printer, if you use a 3D
20 printer with third-party stuff, if you use a kiln,
21 if you use whatever you want, it has to meet these
22 standards.

23 And that's how we as the FDA have decided
24 to construct this regulatory regime.

25 MR. RILEY: Leapfrog guidance, though,

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1 is for developing technologies -- like new
2 technologies.

3 Do we have any expectation that we'll
4 see more regulation from the FDA that's imminent?
5 This is to either party.

6 MR. WEINBERG: I'm not an expert on FDA
7 regulation. What I can take from the existence of
8 that guidance is that the FDA is fully aware of the
9 technology.

10 I think that guidance, if you read the
11 leapfrog guidance, the guidance largely says that
12 the FDA has existing regulatory processes and it
13 is a reminder to manufacturers that whether they're
14 using 3D printing or not, they are responsible to
15 live up to those standards.

16 And so whether or not there's going to
17 be additional regulatory guidance from the FDA, I
18 think you could fairly interpret it as there's an
19 intentionality to that decision-making at the FDA.

20 If the FDA believes that there needs to
21 be additional regulation, they're in a position and
22 aware of the potential problems to do it.

23 And if they decide that they do not need
24 additional regulation because their existing
25 regulatory regime is robust enough to handle a

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1 different type of manufacturing technique, then
2 that is a decision, again, made with intentionality.

3 MR. RILEY: So, we have a 1201 exemption
4 that's existing and on the record last time we also
5 talked about the fact that some 3D printers may not
6 have TPMs on them.

7 Others may not have TPMs, but they don't
8 effectively control access to the work and might
9 not need an exemption.

10 Can you tell me of the uses that would
11 be involved in this expansion, do any of those uses,
12 are those covered by potentially other ways to get
13 this done?

14 MR. WEINBERG: So, sorry, is the
15 question would some of these uses be achievable with
16 printers that don't have TPMs?

17 MS. SMITH: Right, we need to
18 demonstrate some causation as an element of
19 something that we're looking at.

20 So, is the prohibition on circumvention
21 causing some impediment, an adverse effect, to these
22 non-infringing uses that you're seeking to expand?

23 MR. WEINBERG: Sure, I understand. So,
24 again, I don't have survey data on this information.

25 MS. SMITH: Any data?

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1 MR. WEINBERG: Right, so if it would be
2 helpful to add into the record specific examples,
3 that is, information that I have not pulled together
4 prior to this, but it is something that I'm happy
5 to follow up with if that would be helpful.

6 MS. SMITH: Ms. Chapman, do you happen
7 to know whether the trend in 3D printers is to have
8 more or less TPMs on them?

9 Or did you want to speak to that
10 question? You may know the competitor products.

11 MS. CHAPMAN: Actually, I don't think
12 there's been any trend to have more TPMs, I think
13 it's similar to the marketplace in 2015, that there
14 are printers that are not locked with TPMs and there
15 are printers that are.

16 I'm really only an expert on our own
17 printers but there still exist -- you know, the
18 printers that weren't using TPMs three years ago,
19 to my knowledge, they still aren't.

20 MS. SMITH: Do you have any evidence to
21 point to or show that the circumvention of TPMs,
22 or any reason to think if this modification were
23 granted, it would have an effect on copyrighted
24 works?

25 MS. CHAPMAN: I do because the TPMs are

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1 protecting access to copyrighted works.

2 MS. SMITH: Meaning the software on the
3 printer?

4 MS. CHAPMAN: The software, the
5 operating software, on the printers.

6 So, we had talked about in the previous
7 proceedings that it's not really clear and certainly
8 not in all cases is there copyrighted software on
9 the chips that protect the consumable materials.

10 That's not, and maybe in most cases,
11 isn't copyrightable work that's being circumvented
12 directly in avoiding a chip protection of use of
13 third-party unauthorized filament.

14 But the way that the closed systems like
15 the Stratasys printers, the way that they work is
16 that there are sets of system parameters designed
17 that operate depending on the type of material that
18 you're using.

19 So, when you insert the material, the
20 system, the printer reads the chip to see what type
21 of material is on the chip.

22 And then it sort of does a handshake
23 where, then, based on that material, the software
24 configures the parameters that we've set for that
25 material.

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1 If you've introduced a material that
2 doesn't have a set system of parameters and it needs
3 to operate at different temperatures, there's a
4 whole host of complex system requirements that are
5 impacted by what material you use.

6 But if you have something that isn't
7 within the set parameters, you would need to go into
8 the operating software, which that would be a
9 different circumvention.

10 That would be circumventing the
11 password protected access to the software running
12 on the printers, which that's not something that
13 we enable our customers or users to do.

14 So, there would have to be an access into
15 what we call the back-end of the system, and going
16 in and modifying the software to accept a different
17 material. So, then, that would be the copyrighted
18 software.

19 MS. SMITH: Okay, and then I think the
20 answer to this question must be yes, but is it your
21 view that if Mr. Weinberg's petition is adopted and
22 this limitation is removed, there's specific types
23 or models of 3D printers that now become fair game
24 for circumvention that are not fair game now?

25 MS. CHAPMAN: Yes, exactly.

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1 MS. SMITH: Can you speak specifically?

2 MS. CHAPMAN: Specifically, there are
3 printers that are being used to print parts that
4 are put into commerce and used in these regulated
5 industries.

6 So, right now, those printers would be
7 subject to the standard, you know, copyright law
8 that prohibits circumventions of TPMs. They don't
9 fall within the exception.

10 So, a specific example of such a printer,
11 and the offering I referenced earlier this morning,
12 that we have -- we call it a certified solution for
13 aircraft interiors that involves a particular
14 printer, a particular license software, and
15 particular consumables all operating together.

16 So, those presently would fall within
17 this qualifying language so circumvention is not
18 permitted.

19 So, if that qualifying language were
20 removed, then it would be permissible for a third
21 party to circumvent the TPMs that right now make
22 that a closed system. And so --

23 MS. SMITH: Okay, just so I understand
24 the connection to your product -- is that the Fortus
25 900 MC? Or what printer are we talking about?

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1 MS. CHAPMAN: Yes, the particular
2 printer is a Fortus 900 and it's loaded with specific
3 software and a specific print head that is provided
4 to the customer with the certified package.

5 So, it would be the printer -- the 900
6 is a printer that we offer more generally and it's
7 not necessarily printing parts for commerce.

8 I mean, you can be using that and printing
9 prototypes that are just used within your
10 facilities, a non-regulated use.

11 So, that particular printer, the Fortus
12 900, there's uses of that printer and there are users
13 who use the printer in manners that would fall within
14 the bounds of the current exemption, rather than
15 qualifying language.

16 So, in other words, it depends on the
17 use that you're making of that printer, and
18 certainly, there are uses that are exempted.

19 MS. SMITH: Okay, so in your view, it may
20 be non-configured for aircraft -- the Fortus 900?

21 Its general purpose would be -- you'd
22 be permitted to circumvent that under the exemption,
23 but not once it's been sort of configured for the
24 aircraft specifically. Just understanding where
25 the --

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1 (Simultaneous speaking.)

2 MS. CHAPMAN: Sure, well, that would be
3 one example, yes, that aircraft interiors package
4 would be one example of something that would fall
5 outside of the current exemption, but there are
6 others as well.

7 Even without that particular software
8 and that particular package we offer, the customer
9 --

10 MS. SMITH: Is that typical that you
11 configure the printer with specific software to
12 comply with a manufacturing purpose?

13 MS. CHAPMAN: No. This is, it's more of
14 a unique offering.

15 It's sort of like a direction that we're
16 going in the industry to enable greater adoption
17 of 3D-printed parts for manufacturing vertical
18 applications, but it is not something that typically
19 we've offered.

20 So, more typical offerings in the past
21 have been general-purpose.

22 So then it would come down to, as far
23 as applying the current exemption for those printers
24 that don't have this specific application-specific
25 software, it would come down to looking at the

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1 particular printer and assessing, you know, whether
2 that 3D printer is used to produce goods or materials
3 for use in commerce, subject to legal or regulatory
4 oversight.

5 You would have to --- It would be on a
6 case-by-case how that printer is being used.

7 MR. RILEY: I just want to clarify some
8 stuff that's in your exhibit on page 8.

9 Point 4 makes mention that parts by
10 themselves, are not certified by the FAA, but later
11 it says in point 7 if parts and materials are
12 uncertified by the FAA, why is it called certified?

13 And it discusses that the printer using
14 a controlled specification process has been audited
15 and approved by the FAA.

16 MS. CHAPMAN: Right.

17 MR. RILEY: So, I guess back in point 4,
18 it says the parts are not certified by the FAA but
19 are approved by the aircraft's overall
20 certification.

21 I guess the issue is when we talk about
22 the production of goods that are in commerce, you
23 know, taking Mr. Weinberg's point, how are people
24 to understand that there's so many intricacies here,
25 how can they make sure which certification process?

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1 And why, maybe referring to the process of approving
2 the printing process by the FAA is confusing.

3 Can you react to that? And I guess is
4 there a difference between the goods and the process
5 of the goods in terms of other certifications?

6 MS. CHAPMAN: Yes, you are correct,
7 there are a lot of intricacies here and with the
8 regulatory bodies and regulatory agencies.

9 So, what we've done with the certified
10 material solution, we've done a part of the step
11 that a manufacturer of goods to fly in space needs
12 to do.

13 So, there's the material qualification
14 process and then a specific part also needs to be
15 qualified.

16 So, we're kind of putting out, I guess
17 making it clear, that whatever part that a customer
18 decides to print is still subject to FAA oversight,
19 much like Mr. Weinberg mentioned that the medical
20 devices printed on a printer are subject to the
21 general, you know, rules of medical devices.

22 So, you don't need a specific -- you
23 know, the rules don't have to be specific to 3D
24 printers. There's a general body of regulation
25 that applies to these devices regardless of how

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1 they're made.

2 So, what we've done is step one or a few
3 steps or something of the process so that the FAA
4 has already given its general approval of use of
5 our materials as printed in this closed system for
6 printing parts in aerospace.

7 And there's a specification that's been
8 developed and approved, so we have -- like all
9 different properties of the material and the parts
10 that are printed using the printer with a particular
11 material have been vetted through all of this
12 regulatory oversight.

13 And that's been approved so that when
14 you're using our closed system and your output is
15 something that they will approve for flying on
16 aircraft.

17 But a particular part that's printed
18 still, you know, might have to be approved for that
19 part design or other particulars of which --
20 honestly, I'm not familiar with all the details
21 because the customer is doing that piece of it.

22 It is a highly regulated industry.

23 MR. RILEY: Mr. Weinberg, maybe you can
24 react to the challenges -- to what the opponent's
25 just said -- but also the challenges of trying to

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1 conform printing to regulated or certified goods
2 versus a process versus a downstream use.

3 Are any of those easier than others or
4 clearer?

5 MR. WEINBERG: I think what this
6 illustrates is it's complex, right?

7 There is a complex web of regulations
8 when you're manufacturing anything, whether it's
9 an airline part and you're navigating FAA
10 regulations, whether it's a thing on Etsy and you're
11 worried about Prop 64 compliance or lead-free items.

12 There are a number of potential
13 regulations that attach to anything that you are
14 injecting in the industry of commerce.

15 And I think even in the context of this
16 FAA regulation, if you're using this closed process,
17 it's not 100 percent clear to me how it works, I'm
18 not an expert in that, but it seems that process
19 is somehow recognized and understood by the FAA.

20 And if you were to introduce unapproved
21 third-party materials into that process, is my
22 presumption correct that you would then fall out
23 of compliance with that system?

24 So, the FAA regulatory process is robust
25 in the sense that it's designed to handle a specific

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1 set of situations, and if you as a manufacturer
2 decide to bring in elements that are outside of that
3 regulation, the FAA knows how to handle it.

4 It will say you're no longer certified.

5 And so as a manufacturer, maybe you
6 decide that's worthwhile because you can go back
7 and get a certification through the FAA, or maybe
8 not.

9 But again, all this is very far afield
10 from concerns of copyright.

11 MS. SMITH: And we appreciate that
12 perspective and it's something we're looking at
13 seriously, but just to focus on building out our
14 record in other areas too.

15 Ms. Chapman, aside from aerospace and
16 I guess medical device regulation, what other
17 regulated industries are prompting a concern with
18 Mr. Weinberg's pitch for a slightly different
19 regulatory language?

20 MS. CHAPMAN: Those are right now the
21 primary regulated industries that we've been
22 working in. So, as far as what's prompting Mr.
23 Weinberg's concern, I can't really speak to that
24 because I don't have any examples.

25 MS. SMITH: I guess your objection to

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1 Mr. Weinberg's petition, just from what I'm looking
2 at, is mostly driven I guess by those two regulated
3 industries as areas of concern?

4 MS. CHAPMAN: Certainly, I foresee as we
5 expand manufacturing into additional verticals
6 that there are other agencies.

7 We do work also quite a bit with the
8 automotive industry and it's not nearly as tightly
9 regulated as aerospace so we haven't worked with
10 our customers on an example that I have of a tightly
11 regulated product.

12 But certainly, there are regulations
13 there.

14 MS. SMITH: And then, again I'll just
15 sort of paraphrase that I think Mr. Weinberg's point
16 is if something's regulated by the auto industry
17 or an agency charged with regulating that, that is
18 a totally separate regulatory regime and not
19 something that the Copyright Office should be
20 considering when looking at the exemption.

21 MS. CHAPMAN: Well, I think that it's
22 getting maybe a bit twisted around because the
23 Copyright Office has a blanket rule that prohibits
24 the circumvention.

25 And so as the 3D printing manufacturers

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1 aren't coming to you asking you to write rules that
2 supplant what's already in place by regulated
3 industries or in other agencies, we're merely asking
4 that you continue to limit the exemption.

5 Because there hasn't been the adverse
6 impact in the harms identified that support an
7 expanded exemption, and that under the fifth factor,
8 that it is considered or to be considered under
9 statute in making these exemptions is the other
10 considerations that the Librarian deems important.

11 And in the previous proceeding, these
12 safety and health concerns of using the printed
13 parts in regulated industries for manufactured
14 goods is something that was found to be deemed worthy
15 of consideration and was considered in making this
16 rule.

17 And so we believe that is appropriate.

18 MR. GOLDBERG: So, let's say that either
19 you have a 3D printer that is used in a heavily
20 regulated industry, or maybe you are a user who
21 happens to work in one, would modifying the software
22 on that printer in order to use a third-party
23 feedstock be more likely to be infringing on
24 copyright, or maybe the same? Or you know, maybe
25 less?

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1 Could you walk us through that?

2 MS. CHAPMAN: So, in modifying the
3 software to accept consumable material that is not
4 authorized by the manufacturer who uses a TPM, I
5 believe would be copyright infringement because
6 it's not permitted under the license terms.

7 MR. GOLDBERG: Okay, and is that
8 different because it's a regulated industry versus
9 folks who are covered by the exemption right now?

10 MS. CHAPMAN: In terms of whether
11 there's a copyright infringement, the difference
12 in -- I guess there's a consideration between
13 whether a commercial versus a non-commercial use,
14 just in the fair use, determination.

15 So, I think that for, again, that's --
16 commercial versus non-commercial isn't exactly the
17 split that came up with in the current exemption.

18 But if you look at commercial versus
19 non-commercial, the non-commercial user has the
20 benefit of the fair use factors, where a commercial
21 would weigh against that.

22 MR. GOLDBERG: Okay, what about the
23 section 117 analysis? Is that any different?

24 MS. CHAPMAN: So, section 117 is in
25 regards to the owner of the software, right?

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1 MR. GOLDBERG: Owner of a copy.

2 MS. CHAPMAN: So, there's license terms
3 that are typically what the printers placed on the
4 software that's provided and that operates the
5 printers. So, we don't believe that enables --

6 MR. GOLDBERG: Were the license terms
7 more restrictive in a regulated industry? Not
8 necessarily?

9 MS. CHAPMAN: Typically, I guess it
10 depends on the printer because some of the printers
11 are running on really more of an open source
12 software.

13 They're not necessarily getting the
14 software from the printer manufacturers so there
15 are some softwares that are available and are
16 intended for users to be able to change the
17 parameters, and things like that.

18 That's not what we're selling with this
19 Stratasys printer but that's certainly something
20 that is available.

21 So, persons are under the current
22 exemption able to change parameters on software if
23 it's an open system.

24 MR. GOLDBERG: Okay, thank you, and Mr.
25 Weinberg, did you have any thoughts on that?

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1 MR. WEINBERG: No, I think that Ms.
2 Chapman understands the nuances of the licensing
3 of her machines far better than I will.

4 I think that my sense is that generally
5 speaking, there are not licensing decisions that
6 are being made based on the application in the
7 industry.

8 Generally speaking, these machines are
9 sold as the general purpose machines that they are
10 across the board, and there are not a number of legal
11 distinctions between applications and uses, in
12 terms of the copyright.

13 And again, I think your raising of 117
14 is worth circling back on a little bit, and I don't
15 believe that there are concerns being raised that
16 there are standalone markets for the software
17 running these machines.

18 And the kinds of concerns, and I
19 apologize, but the kinds of concerns that are being
20 raised are not the kinds of concerns that we're
21 talking about with regards to infringement of
22 copyrighted works.

23 We find ourselves in a situation where
24 we're talking about a bunch of potential harms that
25 are beyond the scope of that. And a lot of this

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1 proceeding when it began was really about clarifying
2 that the Lexmark precedents in the 2D space apply
3 to the 3D space.

4 And I think there's a lot of value in
5 that separate from -- this is going back to the fifth
6 factor -- separate from the specific legal status.

7 But being able to clarify that those
8 precedents cleanly translate in the 3D space to
9 avoid the ten years of litigation that you're all
10 pretty familiar with, that was tied to that. And
11 I'm appreciative that the Copyright Office took that
12 step in 2015 and is looking again to renew it now.

13 My concern is that the qualifying
14 language that was included has muddied that water
15 a little bit for a purpose that is unclear to me.
16 And so the harm in complicating the analysis is not
17 outweighed by a related benefit.

18 But going back to your original
19 question, I don't think there's a lot of legal
20 distinction right now based on the regulated and
21 unregulated spaces.

22 MR. RILEY: So, I guess in the last
23 proceeding there was a comment in our recommendation
24 that there was not enough in the record regarding
25 whether the software on 3D printers is subject to

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1 someone who owns it versus if it's licensed for 117
2 purposes, except for some evidence of Stratasys's
3 own printers.

4 There was no evidence of industry-wide.
5 Is there any more evidence of that in the record?

6 MS. CHAPMAN: There wasn't any evidence
7 on that put in the record in this proceeding. I did
8 want to maybe just clarify that I guess I agree with
9 Mr. Weinberg that there isn't, license terms aren't
10 based on the use.

11 It's really the printers are typically
12 sold as general purpose, and so the license terms
13 that apply, apply whatever your use is.

14 MS. SMITH: Do you have different
15 license terms for the add-on software package for
16 the particular aerospace use?

17 MS. CHAPMAN: We do not. It is licensed
18 but it is not a separate -- or it's not more
19 restrictive terms.

20 But I did want to point out again that
21 some of the software that is designed to be more
22 open and that allows and enables use of other
23 feedstocks, it might -- the software would be
24 licensed but it might allow the user to control a
25 lot more variables and parameters even under license

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1 just because that's how the software is -- the
2 flexibility that is built into that software.

3 MR. RILEY: And we're still talking
4 about consumer-focused additive printing, not
5 commercial lathes or anything like that?

6 MS. CHAPMAN: I think, typically, that
7 the systems that are more open tend not to be used
8 in the regulated industries but I don't have any
9 facts of that.

10 I mean, I don't have any facts to support
11 that. Nobody's put anything on the record about
12 that.

13 MR. RILEY: Speaking of the record, last
14 time, I wanted an update. There was kind of an
15 assertion but not a lot of record evidence about
16 whether there might be piracy of operating systems
17 on 3D printers.

18 Do we have any evidence of that? Have
19 we seen that change? Are they trading on pirate
20 sites these operating systems or no?

21 MS. CHAPMAN: I have seen that, I've
22 seen that since before 2015 where there is software
23 that has been available on eBay for example.

24 Particularly, we've had some issues
25 originating with actors in foreign countries

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1 putting our copyrighted software into these forums
2 and offering it so that you could -- a use that
3 they're targeting is that you could get our most
4 current software and put it on an older machine and
5 kind of like build your own newer model using your
6 existing older printer.

7 So, there has been some of that.

8 MR. RILEY: Is it your position that
9 removing the limiting clause would encourage that?

10 MS. CHAPMAN: I guess I haven't thought
11 about the TPM protection as encouraging or
12 discouraging that one way or the other. I think
13 that's subject to the copyright licenses and it's
14 protected in that manner.

15 I'm not sure that it's a TPM issue,
16 although, maybe you have to look at how did they
17 download the copies? I'm not sure. That wasn't
18 something that we were considering with the
19 exemptions.

20 MR. RILEY: So, we're discussing access
21 to the computer program on a 3D printer and these
22 additional issues of health and safety are an
23 additional consideration but these are exemptions
24 for copyrighted works.

25 Does Mr. Weinberg have any thoughts to

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1 that?

2 MR. WEINBERG: I think that the fact
3 that as part of this proceeding we've not given a
4 lot of thought to whether or not TPMs have an impact
5 on infringement of the actual software on the
6 printers is a relevant data-point considering what
7 are the concerns that are driving objections to this
8 exemption request?

9 And that the focus has been on things
10 that are unrelated, and the fact that we don't have
11 great information or no one's given much thought
12 on the impact that TPMs would have on infringement
13 of the operating systems seems very relevant to me.

14 And I would say secondly that if you're
15 breaking TPMs for the purpose of infringing on the
16 copyright of the operating system for the purpose
17 of making that software available to someone else
18 who has the printers, that would be a purpose well
19 beyond the scope, certainly the intended scope, of
20 any exemption being discussed here.

21 This is not an exemption designed to
22 allow people to take software off printers and move
23 them onto other printers. This is designed for
24 people who are lawfully in control of their printer

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1 and want to bring third-party feedstocks.

2 MR. RILEY: Ms. Chapman, you look like
3 you want to respond?

4 MS. CHAPMAN: No, maybe I'm not sure
5 that I disagree with the response Mr. Weinberg gave
6 on that.

7 MS. SMITH: Okay, did you have anything
8 else that you wanted to show us in this hearing?
9 You mentioned maybe other exhibits?

10 MS. CHAPMAN: I did bring some sample
11 test coupons to show what part defects so you could
12 see the type of control that we're attempting to
13 get in the printers, which the TPMs kind of -- we
14 benefit from the TPMs in being able to provide these
15 kind of closed systems.

16 And our customers and the manufacturers
17 benefit as well from the TPMs in the certification
18 and validation and traceability requirements that
19 are placed on them by the industries.

20 So, if you care to see them, I did bring
21 some to just kind of illustrate that.

22 MS. SMITH: If that's something you'd
23 like to enter into the record, now would be the time
24 to do it.

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1 MS. CHAPMAN: Sure.

2 MS. SMITH: So we'll start with 12B? I
3 don't know how many items you have.

4 MS. CHAPMAN: Okay, yes, I just have a
5 handful of items.

6 MS. SMITH: And if you want to just pass
7 them around to Mr. Weinberg?

8 MS. CHAPMAN: Sure, so these are test
9 coupons as they're referenced in the literature that
10 was circulated as an exhibit earlier.

11 So, to put a face to that, there's two
12 examples of test coupons that are printed without
13 defects, and then there's one of them that has just
14 some slight black markings in it that -- so this
15 is the one with the defects.

16 It just shows the level of control that's
17 needed in order to avoid part defects because a
18 defect is where parts fail. So, that's what we're
19 trying to avoid.

20 So, the black marks on this just -- if
21 you want to pass that around, it just shows where
22 the material has overheated for one reason or
23 another, maybe there was something, particles, that
24 were caught in the nozzle and overheated, or maybe

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1 the temperature of the extruder was too high, but
2 in any case, it darkened some of the material and
3 that will lead to a defect.

4 This is one of the test coupons. So, we
5 print these and then there's tests and there's tests
6 to see what force they can withstand.

7 So, this is just showing where a break
8 from one of the tests, and the break was at a defect,
9 which the defect is if you're going to put it
10 together, you can see just a little blip.

11 And that's where the breakage occurred.

12 MR. RILEY: And how do you discover
13 these defects?

14 MS. CHAPMAN: So, those test coupons are
15 printed by our customers, by users of the printers,
16 the sophisticated users that are needing to get very
17 specific results.

18 So, those particular coupons were
19 printed in connection with the
20 aircraft-interiors-certified parts, but those are
21 test coupons that are done really on all of our
22 printers.

23 So even though not within a specific
24 package, we just generally enable the customers to

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1 be able to print these test coupons and validate
2 their parts so that they can meet whatever
3 requirements they need to meet in their part
4 strength.

5 And to validate that the printer is
6 operating according to all of its operating
7 specifications of the closed system.

8 MR. RILEY: So, I saw that one piece was
9 broken but I don't understand what someone would
10 see where that black dot was. Tell me more about
11 how they're looking at these items to see if they're
12 not up to snuff?

13 MS. CHAPMAN: Right, so you could see
14 where the black marks are, you can see there's
15 defects, even without testing it. So, that one
16 would --

17 MR. RILEY: Inspect it, then, is what
18 you're saying?

19 MS. CHAPMAN: Yes, so that would be
20 inspected and it wouldn't pass. But then also,
21 they'll do the force tests on them to verify that
22 they pass as well.

23 MR. RILEY: And these parts that are
24 defective, were they made with replacement

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1 filament?

2 No, this is made with our own,
3 Stratasys's filament, before the commercial
4 manufactured part would be produced.

5 It would validate that the system is
6 operating according to its own specifications
7 before printing the parts.

8 MR. RILEY: So, I get that there's maybe
9 multiple levels of making sure that the
10 specifications are up to the certain standards but
11 wouldn't someone who's using replacement
12 third-party filament using this exemption to do so
13 be able to visually inspect those parts?

14 MS. CHAPMAN: They would be able to.

15 I have just a couple of other examples
16 since I have them here. So, this is also the test
17 part.

18 This is not a coupon but it's a test part
19 that's designed to show the different tool paths
20 and give a wider range of printed geometries to look
21 at in the testing.

22 And that one is one that passed so that's
23 just an example, again, of the kind of qualification
24 that's done on these printers.

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1 And then this piece that I have in my
2 hand, it's a portion of a part that actually is made
3 to fly on airplanes.

4 And on one face of it, it has a nub that
5 isn't intended to be there, and so that would be
6 a defect that doesn't pass the inspection as well.

7 So, yes, people would be able to examine
8 these defects, whether they're using our materials
9 or other materials, but the importance of all of
10 this is just that the TPMs are part of what plays
11 into that closed system.

12 They're part of what assures that 3D
13 printers are producing trustworthy parts.

14 And particularly, it was something that
15 Pat Carey addressed in 2015, that where there's
16 multi levels of suppliers, these multi-tiered
17 suppliers, there's a concern that somebody in the
18 supply chain is going to want to save money and use
19 a cheaper material.

20 MS. SMITH: Okay, thank you, and just in
21 terms of housekeeping, I think the first collection
22 of coupons we're going to call 12-B, the one that
23 I want to say looks sort of like a clock we're going
24 to call 12-C, and then the airplane piece that you

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1 just referred to last we're going to call 12-D.

2 (Whereupon, the above-referred to
3 document was marked as Exhibit 12B-D for
4 identification.)

5 MR. RILEY: First, I want to ask if my
6 colleagues had any more questions? Then, Mr.
7 Weinberg, if you have any final responses?

8 MR. WEINBERG: No, I really appreciate
9 that you're taking the time to consider this and
10 I recognize that there have been a couple questions
11 about specific evidence.

12 I think process-wise, I'm happy to
13 provide that or not provide that as it's useful.
14 I guess I will wait to hear if there's a request.

15 MS. SMITH: Thank you, yes, and in
16 general, after these hearings, the Office is going
17 to take a look at what we've got for each of the
18 classes and if we find the need to issue post-hearing
19 questions we'll do that to the participants for that
20 specific class.

21 So, we appreciate both of your time very
22 much. I think we're going to adjourn now and then
23 come back at 11:00 a.m. for what we term the audience
24 participation session.

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1 So, thank you, Class 12, and if anyone
2 else is interested in participating, we have a
3 sign-up sheet.

4 And I think we'll get started right at
5 11:00 a.m. and we'll probably not go all the way
6 to 12:00 p.m. so thank you.

7 (Whereupon, the above-entitled matter
8 went off the record at 10:17 a.m. and resumed at
9 10:59 a.m.)

10 MS. SMITH: Okay, now I think we're
11 ready to get started.

12 Okay, great, so we are commencing the
13 audience participation, which is the finale to the
14 D.C. part of the section 1201 hearings.

15 And I will say that I think the two
16 participants we're going to hear from are people
17 who are unable to attend the Los Angeles hearings
18 for specific classes, and that's what they wish to
19 speak on. So, we're going to have a slightly
20 different format. We'll go, I think, probably one
21 then the other, first focusing on Class 8, which
22 is computer programs, video game preservation, and
23 I think we are going to hear from Mr. Fries first.

24 If you want to state your name, your

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1 affiliation, and I believe we have demonstrations
2 which will start with 8A. And then if we have two,
3 the second will be 8B.

4 MR. FRIES: This is too technical for
5 me. Okay, I mastered it now. Anyway, can I go up
6 there and give my little talk?

7 MS. SMITH: Please, yes, and I think
8 there's a microphone there too if you want to use
9 it.

10 MR. FRIES: Yes, we tested it before and
11 I think it's on.

12 All right, hey, thanks a lot for having
13 me here. I'm not a lawyer, I've never done this
14 before. Most of my friends are going to be
15 testifying in LA on this, but I was going to be here
16 so thank you for the chance to come and speak to
17 you.

18 A little bit about me, I've been making
19 games since I was a little kid.

20 I went to work for Microsoft in 1986,
21 worked on Excel for five years, worked on Word for
22 five years, then got to do what I really wanted,
23 which was build Microsoft's game business, built
24 it up, launched the Xbox, retired.

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1 And now I do for-profit and non-profit
2 board work on the Board of Commissioners at the
3 Smithsonian American Art Museum, which is why I'm
4 in town.

5 And I also do some videogame
6 preservation work that I'll talk about in a minute.
7 Videogame preservation is really important.
8 That's what I want to tell you with this slide.

9 It's really a new medium, a new art form,
10 a new medium of communication. And it's only been
11 around about 40 years; the first real video game
12 I think was produced in 1962, a game called Space
13 War. The first arcade videogame in 1971, a game
14 called Computer Space.

15 So, we're kind of at this time when the
16 people who worked on those early games are dying,
17 and so we need to go and capture what they know,
18 record it, interview them before it's gone. And the
19 games are disappearing too and we need to capture
20 and preserve those.

21 Business is huge, it's bigger than
22 movies, it's bigger than music, it's become one of
23 the biggest mediums of communication that there is.
24 And this particular item that we care about is about

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1 extending protections that already exist for
2 offline games and preserving offline single-player
3 games to preserving online multi-player games. And
4 we think the same rules that apply to the offline
5 should apply to the online. When we talk
6 about these online things, they get called this
7 weird word, MMO or MMORPG, that stands for massively
8 multi-player online, they're the first virtual
9 worlds.

10 They're the first times that human
11 beings got together and met in a virtual space. And
12 for that reason alone, they're really important.
13 The problem with them is they're very difficult to
14 preserve.

15 If I buy a cartridge for an Atari game
16 made in 1977, I can still plug it into my Atari today
17 and hook it up to my TV and play that game.

18 But these games, really, you can think of them
19 as having two pieces, one that plays on your local
20 machine, whatever that is, and another that plays
21 on a server or in the Cloud.

22 And it's that server piece that usually
23 disappears; when a company goes out of business,
24 it's just gone. The software is gone and it'll

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1 never run again.

2 It's like we really only have half the
3 game if we don't preserve the server side.

4 MS. SMITH: Could I ask you how, in your
5 view, would you preserve the server side?

6 MR. FRIES: Well, I mean there's groups
7 that are dedicated to preserving software and
8 preserving games in particular.

9 Three that I work with are the MADE in
10 Oakland, that's one of the groups that's going to
11 be testifying. A second one is the Videogame
12 History Museum in Frisco, Texas.

13 A third one closer to home here is in
14 Rochester, New York, it's called the Strong Museum
15 of Play. And they do some great work there. So,
16 those are the kinds of institutions where we would
17 see this preservation work happening.

18 My last bullet point, it's a little
19 hyperbolic maybe but, really, this is an evolution
20 of the human species. This is the first time we go
21 from just meeting physically to also having places
22 where we're interacting in a virtual world.

23 And I think that's going to be something
24 we'll look back on not just in 50 or 100 years, but

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1 1000 years from now and this will be a point in time
2 when that happened. So, it's important to
3 preserve.

4 I do preservation work. Most of the
5 work that I do focuses on a period right when the
6 arcade videogames were first coming out.

7 I mentioned Computer Space before; the
8 first arcade videogame came out a year before Pong
9 in 1971. I wrote the only article that exists about
10 the first color arcade video game, which is a game
11 called Color Gotcha.

12 I wrote the article about the first
13 Easter egg in a videogame, which is not the one that
14 appears in Ready Player One but is actually before
15 that, two years before.

16 So, anyway, this is something that's
17 near and dear to my heart as somebody involved in
18 the game business for a long time.

19 MS. SMITH: Do you want to explain -- and
20 I know you're not a lawyer but in connection with
21 the prohibition on access controls, why an exemption
22 might be necessary for preservation.

23 Is it not possible to get permission from
24 the people who are the copyright owners for this

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1 preservation work? Tie it into the proceeding a
2 bit.

3 MR. FRIES: Yes, for a lot of the stuff
4 that I do, the companies either no longer exist or
5 they exist but the rights could have been sold
6 through multiple versions of companies by now.

7 There is a company called Atari now but
8 it has nothing to do with the original Atari. And
9 when we go back to and try to find information about
10 what happened in Atari in the early '70s, all of
11 it -- well, these are really my next two slides so
12 let me just go on.

13 In many cases, the only comprehensive
14 sources of information are things that I've written
15 or other people like me have written.

16 The companies are long gone, they've
17 been sold and I'll talk a little more about that
18 in a minute. And if we don't preserve them, this
19 important history is going to be lost.

20 Companies cannot be relied on to
21 preserve their own work, this is to your point. Maybe
22 that sounds a little controversial but I take Atari
23 as an example.

24 The company was acquired by Time Warner

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1 and then run out of business in the early '80s. They
2 took everything they own, some of it they buried
3 in a landfill in New Mexico, which was recently
4 excavated.

5 Most of what exists today either is
6 something that employees were working on and took
7 home to their house or stuff that people rescued
8 out of dumpsters when the company went out of
9 business.

10 If we didn't have that stuff, we wouldn't
11 have the information we have about the early days
12 of the videogame business.

13 So, it's scary to rely on companies
14 because they don't necessarily make this a priority.

15 It's even worse, unfortunately, with
16 the kinds of games we're talking about today,
17 online, massively multi-player games.

18 A company is running this thing for
19 profit; when it stops making money, they shut it
20 down and they have no real incentive to preserve
21 it.

22 And at that time, for those few years
23 it doesn't seem important, but then you look back
24 at it 10 years later or 20 years later and realize

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1 in the context of history, it was very very
2 important. But it's gone forever.

3 Unfortunately, more and more games
4 today are games like that. So you may notice you
5 download a new game on your cell phone and then you
6 get on the airplane and turn on airplane mode and
7 all of the sudden you can't play the game anymore.

8 It's because really only part of it lives
9 on your phone, and part of it's now out in the cloud
10 somewhere on a server.

11 And so more and more games are being
12 built that way, it makes sense to build games that
13 way but it's really a nightmare for preservation
14 because there's no local copies that are being
15 preserved.

16 So, it's an area that we need to enable
17 these groups that preserve this software, we need
18 to give them ways to do it legally.

19 I'm getting ahead of my slides again but
20 that's why we need this.

21 First of all, again, I'm not a lawyer
22 but when I see what's allowed today for single player
23 and land games, we're just asking for those same
24 things extended out to online and multi-player

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1 games.

2 That work would be done inside
3 institutions like the three that I mentioned
4 already, that's the right place for it.

5 And they will in many cases need to
6 cooperate with other experts to do that work, and
7 they should have the right to do that.

8 MR. RILEY: So, practically, how are
9 they going to do that, though? I think the one
10 example that you gave, dumpster diving, how are they
11 accessing these works?

12 If we still have a qualification that
13 the people who are doing these circumventions must
14 lawfully access the work, how are they ever going
15 to obtain them without the participation of the
16 different companies that create them?

17 MR. FRIES: On the lawful thing, I'm not
18 going to speak to it, but I can talk to the technical
19 part. There's really two choices.

20 One is that you have access to the
21 original source code. So, in the case of MADE,
22 they're trying to bring back an MMO and an early
23 online game, and fortunately, they had access both
24 to the source code and to the hardware itself, the

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1 custom hardware that it ran on.

2 And they've been able to bring the game
3 back to life because of that, but is it legal what
4 they've done? I don't know, and I think that's why
5 they really care about this rule.

6 The second option is to recreate the
7 server software. That has been done illegally by
8 people around some very popular games, for example,
9 people have built illegal version of the server-side
10 code for World of Warcraft.

11 It shows that it can be done. You have
12 sort of a well-defined what we programmers would
13 call an API, a program interface that the client
14 side, the part that's on your local machine, uses
15 to talk to the server side.

16 And so based on that API and the
17 structures that get passed back and forth, it is
18 possible to create something on the server side that
19 acts like the original server code.

20 And so I suspect that in cases where the
21 source code is lost, that kind of work would be done.

22 MR. GOLDBERG: So, I can sort of imagine
23 a range of different ways that the game-play is split
24 between the clients and the server.

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1 So, at the very low end, maybe all the
2 server is doing is authenticating that you have a
3 license or, you know, maybe a little bit beyond that
4 would be the server coordinating what's your high
5 score right now, where on the map are you, that sort
6 of thing.

7 But then when you go beyond that,
8 sometimes it actually is streaming the game assets
9 to you in real time, the images and sounds and maps
10 and all of that.

11 So, when it's the latter, when it's
12 actually the game assets that are being stored on
13 the server, how would you go about re-implementing
14 that?

15 MR. FRIES: Yes, fortunately,
16 typically, it's not the assets that are streamed.
17 Usually, the assets are kept locally. Usually,
18 there's two things that are going on.

19 One is they want to keep the bandwidth,
20 the amount of data that's communicated back and
21 forth between the server and the client, relatively
22 low because that can have a cost implication for
23 that.

24 But the second thing is, in many cases,

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1 they're moving things on to the server side to
2 prevent cheating, okay?

3 When it's on the client side, the client
4 could be hacked by a player and all of the sudden
5 the player has a super high score or can unlock stuff
6 that they should be paying for, that kind of thing.

7 The companies want to prevent that, and
8 so because of that, they push things into the server
9 where they have total control over that. Somebody
10 at home can't presumably hack the server.

11 So, it's really to keep the amount of
12 bandwidth low but put all the important stuff on
13 the server. So, every time you kill a monster, the
14 fact that you get experience points or something
15 like that.

16 Every time you buy or sell something,
17 every time you trade something, and so if you take
18 that server piece out, yes, you may have the assets,
19 it's nice to have the assets locally, but the game
20 won't run.

21 MR. GOLDBERG: Okay, so you think that
22 more often than not, it's not a challenge of having
23 to recreate the assets necessarily if you don't have
24 the server code?

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1 Is that right?

2 MR. FRIES: Correct, so I've run a
3 little business for 10 years in cooperation with
4 Blizzard World of Warcraft where I 3D print World
5 of Warcraft, license to 3D print World of Warcraft
6 characters for people. The company is called
7 FigurePrints.

8 We have no access to the server side.
9 We can pull up and recreate all the characters with
10 all their armor and weapons and everything just
11 using the local data, client-side data.

12 MR. RILEY: And we expect with MMOs and
13 not just other games that have this remote server
14 issue. But MMOs are built by the players when the
15 game is on.

16 Some games like The Sims or Minecraft
17 might have stuff that can't be replicated even if
18 the game is restored. Is that right?

19 Is there an element of this that is
20 dependent on the players of the time who incorporate
21 their own features into the game because these
22 massively multiplayer games have more than one
23 element going on?

24 It's not just the servers being down that

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1 causes you to not be able to replicate the game,
2 it's that the players and their additions to the
3 world are no longer there?

4 MR. FRIES: It's actually relatively
5 unusual to have those kinds of additions. First of
6 all, Minecraft, I would call an online game but I
7 wouldn't call it an MMO.

8 There are people who built extensions
9 to Minecraft that act that way but typically, the
10 reason that you don't let players do a lot of
11 building out in the real world is because they fill
12 the real world with crap.

13 And they discovered this with Ultimate
14 Online and other things where they let people build
15 houses, and pretty soon, the game was filled with
16 houses everywhere.

17 Then you have to have all kinds of rules
18 and it starts to seem too much like the real world.

19 So, typically, people who run, they're
20 trying to create a feeling of a fantasy environment
21 or something like that. Typically, they keep
22 pretty tight control over what can be in those
23 worlds. And that's really the kind of thing that
24 you're trying to preserve.

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1 But yes, around something like
2 Minecraft, who owns what? I mean, that's a better
3 question for you than me, right?

4 If I buy Minecraft but then I build a
5 really cool castle, is it my castle because it's
6 just like a painting tool and I painted a castle?

7 If I use a painting program and I paint
8 something, I assume I own it because I painted it.
9 If I do that in Minecraft, it's 3D blocks instead
10 of pixels, do I own it?

11 So, anyway, but I don't want to take you
12 down that road.

13 MS. SMITH: I think that's a bit of a
14 digression.

15 MR. RILEY: Yes, you bring up an
16 interesting point about control in your history and
17 your work. As someone who's contributed to
18 videogames, do you understand or do you agree with
19 the concept that these publishers would like to
20 continue control for maybe some copyright reasons
21 and some not copyright reasons?

22 For example, you brought up cheaters or
23 people who are abusive to players. Are those
24 reasons legitimate or can you talk a little bit about

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1 that?

2 MR. FRIES: So if I were running one of
3 those companies, which I did for a bunch of years,
4 my concern would be about people taking my
5 intellectual property and using it for financial
6 gain.

7 And so that would typically be the place
8 that I would go. Halo is a game that we published.
9 If somebody was making Master Chief T-shirts and
10 we weren't getting our licensing fee, I'd have an
11 issue with that.

12 If a museum was preserving our software
13 for perpetuity, which is a completely
14 non-commercial use, I can't imagine having an issue
15 with that as someone who ran a major publisher.

16 So, I don't understand what the issue
17 is if these things are kept within these
18 institutional contexts.

19 Maybe there's some things about making
20 sure that the work that they do is kept in a secure
21 way, that it couldn't leak out to a pirate or
22 something like that. There could be some
23 legitimate concerns there that I think could be
24 addressed.

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1 But, anyway, go ahead, it looks like you
2 have something you want to say?

3 MR. RILEY: There's been some
4 assertions that museums won't act as we
5 traditionally think of museums but will be basically
6 arcades. They're charging admission to play games.

7 Do you have that concern? Do you have
8 thoughts on that? Is there some way to outline what
9 is okay and what's not in your view at least?

10 MR. FRIES: I haven't given it a lot of
11 thought. I think it's a valid concern that needs
12 to be addressed. I know of an arcade that operates
13 as a museum, it calls itself a museum, but charges
14 people admission, and they come in and they play
15 the games.

16 And these are arcade games. It's not a
17 great comparison because in an arcade context, you
18 buy the machine and then you can make as much money
19 as you can off of it. There's not a license fee that
20 goes back to the creator.

21 But I know from the three institutions
22 that I mentioned, that's not how they operate. But
23 I think it's right to have rules around commercial
24 or non-commercial use.

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1 The research preservation works would
2 be non-commercial, whatever that means.

3 MR. RILEY: So, you mentioned before
4 about the important thing to you is the financial
5 parts of this. Can you talk, and I'll let you move
6 on to whatever else --

7 MR. FRIES: I'm done by the way so it's
8 a good time for questions.

9 MR. RILEY: Okay. But in reference to
10 -- this was your career -- you made mention of, for
11 example, some games, that the ET game was buried
12 in the desert.

13 MR. FRIES: I didn't say that but I'm
14 impressed you knew which one they were digging up.

15 MR. RILEY: There are some games -- more
16 and more, whether they're these external server
17 games or what is generally retro gaming, they're
18 developing more markets for these.

19 As someone who has worked in this
20 industry, is that something that you have concerns
21 about, an exemption getting in the way of the market
22 for re-issued or re-mastered works?

23 MR. FRIES: I don't. I'm a big
24 participant in the retro community, I speak at retro

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1 conferences.

2 The one in Portland now, we've got about
3 20,000 people there, and it's great, it's great for
4 the industry, it's great to see people embracing
5 collecting and preserving these games. So, I'm a
6 fan of that.

7 I think companies like Nintendo,
8 they're still doing things with Mario, which is one
9 of their first characters and they should be able
10 to do that. And they're the only ones that should
11 have the right to make money off Mario.

12 I agree with all that but if a museum
13 wants to preserve things related to Mario so that
14 they're not lost in the future, I don't see how those
15 two things have to be mutually exclusive I guess
16 is what I'm saying.

17 MS. SMITH: All right, thank you very
18 much.

19 MR. FRIES: Thank you.

20 MS. SMITH: So, I think now we're going
21 to turn to Ms. Rose.

22 If you want to state your name, your
23 affiliation, and if you can focus first on Class
24 8 videogames issue, and then we'll move to the other

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1 class.

2 MS. ROSE: Absolutely, my name is
3 Meredith Rose. I am Policy Counsel of Public
4 Knowledge and I am an attorney and also an avid
5 gamer, though I do not have the industry side
6 experience.

7 But I just sort of wanted to speak here
8 both to answer some questions and to draw focus to
9 some of what we talked about in our support comments,
10 which is the fact that the current exemption as it
11 stands relies on distinguishing a complete game from
12 a non-complete game, which we've sort of seen play
13 out in this notion of online versus offline
14 components.

15 And to draw attention to the fact that
16 the current evolution of videogames is blurring that
17 line to the point where the distinction as it stands
18 is becoming increasingly unworkable.

19 So, I have a short AV presentation of
20 some of these games that I think illustrate the point
21 rather well.

22 MS. SMITH: Great, let's start with
23 that. Does she need help carrying it out or is it
24 cued up? We're going to get it cued up and that would

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1 be Exhibit 8-B.

2 MS. ROSE: Yes, so I just want to
3 apologize in advance. I have never used iMovie and
4 so some of these transitions are a lot flashier than
5 they realistically need to be for a government
6 setting.

7 So, all of these games, this is all
8 screen-captured off of me playing these games,
9 actually, last night.

10 So, these are three extremely popular
11 games that are known partially for the fact that
12 they have these innovative multi-player elements
13 to them.

14 And I'll try to sort of explain them as
15 we go. So, I may start and pause the video.

16 And so this is sort of non-traditional
17 and what we call mandatory multi-player. So, this
18 is a game called Journey from 2012, this is actually
19 a beautiful game. I'm not going to go into the
20 artistic merits here.

21 In Journey, you largely play as
22 single-player journey through this sort of big --
23 and you can see how broad and open this world is.
24 90 percent of the time you're alone.

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1 Once in a while, someone else who is also
2 playing a single-player game will be transported
3 into the same server as you and so you will
4 incidentally run across them. And so you see me
5 running into someone right there.

6 And you can pick up the sound. The only
7 method for which you can communicate with other
8 players are these chirps which fill a small icon
9 above your head.

10 But that's the limitation of your
11 ability to communicate so it's largely based on
12 bouncing and chirping.

13 And you have no other meaningful way of
14 interacting with them, and so in this particular
15 case, I'm in white and I'm sort of leading the person
16 in red off to what is an Easter egg in the game.

17 And then you get a sense when you go far
18 enough away but the quarter of the screen lights
19 up with bright light to show that they are starting
20 to fade out in the game.

21 This is another game called Dark Souls,
22 I'm going to pause it here, because this takes a
23 little bit more explanation. Dark Souls is a
24 single-player in every traditional sense of the

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1 word. It's sort of a dungeon grinder, it's known
2 for being very punishingly difficult, that's kind
3 of its marketing point.

4 But you play it essentially as a single
5 player campaign but there are various multi-player
6 elements that are interspersed throughout and added
7 in very interesting and innovative ways.

8 So, there's two red stains in front of
9 me which I'll talk about when they get to it, but
10 interestingly, when I loaded up the game, something
11 unexpected happens. You'll see a ghost walking off
12 to the right-hand side of the screen.

13 That's someone else playing the game in
14 real time, someone else in the world who just
15 incidentally happened to pass by the spot where I
16 was standing.

17 And they got far enough away and then
18 they faded out again. So, what I'm about to do is
19 touch a blood stain. These are dynamic elements
20 that show up in the world.

21 When you run into a blood stain, it means
22 that someone has died at the spot you are standing,
23 relatively recently in the game. And if you touch
24 the blood stain, it will show you their last moments

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1 as a red ghost.

2 You don't actually see what they're
3 fighting so it's kind of used as a strategic way
4 to get a preview of what's coming up. So, you touch
5 the blood stain, there's a ghost, someone presumably
6 getting murdered by the boss who used to occupy this
7 spot.

8 These are messages which are left by
9 other players. There's a very limited set of words,
10 there's a word menu that you pick from to read them.

11 Occasionally, you can leave them like
12 this person did with a recording of a preset gesture
13 that you make but you cannot just manually enter
14 letters and type your own. You have to pick from
15 a certain list.

16 Sometimes they're technical points,
17 sometimes they're just things like that. Sometimes
18 they're a little more off color depending on your
19 flavor.

20 This is Animal Crossing, which we
21 mentioned in our filing is one of the most popular
22 games of 2017. So, there's no sound on this one.
23 This is an iPhone game that is made by Nintendo.
24 It's part of a franchise that I believe dates back

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1 to the mid-'90s. And essentially, you play as an
2 avatar and you're the mayor of a town that is
3 inhabited by little animals.

4 And you harvest trees for fruit and you
5 go and you play flowers, and it's almost like a
6 farming simulator in some ways, just kind of an idle
7 time-killer, frankly, time-suck, in my life.

8 And one of the features of this is it is what
9 we consider mandatory multi-player. So, almost the
10 entire game, you at no point have to interact with
11 another person but you must be connected to the
12 internet because you will run into, in every stage,
13 avatars of other people.

14 So, this is someone playing elsewhere
15 in the world, not dynamically, this is just they
16 pick a random avatar from other people who are
17 playing in the world, presumably from Japan given
18 the character's name.

19 I don't know this person, I've never met
20 them in my life, I have no connection to them. Their
21 avatar has been dropped unceremoniously into my game
22 and you can interact with them in a bunch of ways.

23 You can buy things off of them, I bought
24 fish, you exchange money with them. And then you

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1 can do things like you can go visit every character,
2 you build a campsite, that's kind of the square 0
3 for these games.

4 When you start up, you start building
5 a campsite.

6 So, I went to go visit this person at
7 her campsite, and it brings up, once you get through
8 some campsite wisdom and other various ads, you get
9 deposited at a mockup of what their campsite looks
10 like, complete with the animal villagers who have
11 come to populate their campsite. There is no way
12 to actually exchange messages with these folks.

13 I think I do the closest thing that you
14 can, which is called giving kudos. You'll see this
15 in a second. You give kudos and literally all you
16 do is give them to them, and that's it.

17 And if you as a player get -- receive
18 a certain number of kudos in day, you get a bonus
19 item. That's it.

20 You cannot play this game on airplane
21 mode. It must have a server connection at all
22 times, it is not a traditional MMO in any stretch
23 of the imagination.

24 But at the same time, it is a

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1 single-player game in which there are multi-player
2 elements that are mandatorily injected into the
3 game, which you can choose to take advantage or not
4 as you decide.

5 MS. SMITH: This is only playable on a
6 smartphone?

7 MS. ROSE: Yes, this is an iOS game. I
8 don't believe there's -- I'm not sure why it's
9 loading again. But, yes, I don't believe there's
10 an Android equivalent, it's only iOS.

11 But there are other iterations of this
12 game that don't have the multi-player elements that
13 are on things like the various Nintendo handheld
14 consoles.

15 So, I just wanted to bring these up as
16 examples of where traditionally, games that are
17 considered single-player in the traditional sense.
18 And frankly, if you didn't know any better, you'd
19 think you were playing a single-player game, and
20 not necessarily having to take advantage of the
21 multi-player elements, which do have these injected
22 multi-player aspects that do require an ongoing
23 server connection to somewhere in the world and
24 arguably foreclosed from preservation by the state

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1 of the current exemption.

2 MR. RILEY: So, what is your response to
3 ESA's assertion that the adverse effect is not
4 caused by TPM but from the servers shutting down
5 which is a different issue?

6 MS. ROSE: I think that is certainly a
7 factor. The adverse effect, I can't speak to the
8 engineering aspect of this because I'm not an
9 engineer and I think those are questions more
10 properly posed to MADE, but I will say that -- okay,
11 so perhaps to illustrate, folks may or may not be
12 familiar with the Nostalrius issue.

13 So, Nostalrius was a server from World
14 of Warcraft. World of Warcraft, I think it went
15 live in 2004, 2003, 2004, and version 1.0 people
16 fondly referred to as vanilla World of Warcraft,
17 and it's now been going for 14 years.

18 And there have been immeasurable tweaks
19 under the hood, not only aesthetically to the actual
20 assets in the game to make it look prettier, there
21 have been expansions of things like classes and
22 races and areas, and there have been actual
23 expansion packs.

24 But at the same time, there have also

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1 been tweaks to the mechanics of the game, and to
2 the result where the World of Warcraft that I played
3 when it first came out in 2004 is unrecognizable
4 when looking at the current game, other than
5 essentially the name.

6 Some of the classes remain the same but
7 there's a lot of the game that has very fundamentally
8 changed.

9 There is a dedicated following of
10 vanilla World of Warcraft circa 2004, and so a bunch
11 of these fans decided they didn't like the way the
12 game looked now and they wanted to be able to
13 preserve the game that they knew and remembered.

14 And so what they did was they spent years
15 essentially reverse engineering the server-side
16 outputs.

17 This is a very painstaking process from
18 all indications, but they put it up as a free-to-play
19 semi-private server, I believe there was an
20 invitation required but it was relatively easy to
21 get, called Nostalrius, as a play on nostalgia.

22 And you could create a character and you
23 could bop around. This was not connected to the
24 greater World of Warcraft servers run by Blizzard

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1 --

2 MS. SMITH: Is this what Mr. Fries was
3 talking about?

4 MS. ROSE: With the World of Warcraft?

5 MR. FRIES: It's a different one than I
6 was referring to but it's very similar.

7 Yes, same game, it's a different one that
8 I was referring to but it's the same game, same
9 technique, where you completely reconstruct the
10 server side, yes.

11 MS. SMITH: Okay, so you were talking
12 about a more preservation context versus --

13 MR. FRIES: No, it was talking about the
14 opposite. I was talking about more of a pirate
15 version that has been done by pirates.

16 MS. SMITH: Okay, how is Ms. Rose's
17 example, the vanilla World of Warcraft
18 reconstruction, more or less of a pirate version?

19 I'm just trying to understand the
20 differences.

21 MR. FRIES: Well, I'm not sure what her
22 point is so I'll let her finish.

23 MS. ROSE: I guess my point in all this
24 was it ran and the lifecycle of it was it was up

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1 and then they got a notice from Blizzard, and it
2 was taken down.

3 And now Blizzard I believe has a plan
4 to actually start offering vanilla World of Warcraft
5 servers that people can log into and get this old
6 experience.

7 That would not have happened had it not
8 been for a fan preservation movement.

9 Having said that, I bring up this example
10 primarily to draw attention to the fact that these
11 games, especially MMOs which do have a sizeable
12 amount of things like mandatory patching, mandatory
13 downloads, mandatory expansion packs in a lot of
14 cases, where you don't have to buy the expansion
15 pack until you do. And it's been out for a certain
16 amount of time.

17 These make very difficult preservation
18 issues and to avoid getting too philosophical, I
19 won't go down the rabbit hole, but at what iteration
20 can you preserve something?

21 And because these issues of
22 preservation exist when -- why have so much control
23 that is stacked on the side of the developer,
24 essentially, these newer versions of World of

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1 Warcraft overwrite history.

2 And so this raises very difficult
3 preservation issues.

4 MS. SMITH: Well, so yesterday we were
5 talking about software preservation more
6 generally, including if an exemption were
7 recommended by the Copyright Office, whether it
8 should include or not include videogames.

9 And one question is -- are you saying
10 it's difficult to tell whether a specific version
11 of a videogame is commercially available in the
12 market or not?

13 MS. ROSE: I think that's accurate, yes,
14 and there are certain times when I think looking
15 at games as iterations of something that's just
16 generally lost in the discussion.

17 MS. SMITH: Is it not noticeable or
18 marked on the game when you're purchasing the
19 software or logging in?

20 MS. ROSE: So, generally, if I went and
21 purchased World of Warcraft today, it would be
22 mandatory that I am updated to whatever the latest
23 version is that is available from Blizzard, who is
24 the company that develops it.

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1 And there is a notice when you log in
2 usually in the lower lefthand corner that'll say
3 version 14.0, whatever it happens to be at the time.

4 On the box, usually what you get just
5 says World of Warcraft and it will have sometimes
6 -- again, this is assuming people buy it off a box,
7 which is also becoming rarer and rarer, but usually,
8 when you purchase it, it will just say the general
9 title of the game.

10 It won't have any indication as to what
11 the current version is because they're not going
12 to reprint boxes every time there's a new iteration.

13 So, I believe that the expectation from
14 a consumer is that when you buy one of these games
15 and when you deal with them or purchase them in a
16 store, you are going to be forced to update to
17 whatever the most recent iteration is.

18 So, if I wanted to go out and buy the
19 World of Warcraft I played 14 years ago, I have no
20 option for that.

21 MR. RILEY: And looking at those patches
22 that we've been talking about and not the upgrades
23 like the expansion packs, you mentioned -- I think
24 both in your submission and now -- that there's

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1 different versions of these patches.

2 Some are for gameplay, new characters,
3 new options, things like that, and some are for
4 interoperability so the game continues to work.

5 Is there a difference between those two?
6 Should one be preferred over the other in terms of
7 preservation uses?

8 I think there might be a concern that
9 there's some sort of contention between wanting to
10 be able to exercise your derivative work rights as
11 a copyright owner and make alterations to the
12 expressive elements in the game, versus having
13 someone preserve something that's not related to
14 what you have intended your expression to be?

15 And I think some of the submissions talk
16 about maybe deleting items. I know there's, for
17 example, Modern Warfare 2 had a multi-player map
18 that had an offensive display in one of the
19 multi-player portions.

20 Shouldn't the copyright owner get to
21 remove that from the game?

22 Versus are there other issues about
23 adding stuff and it should be to the copyright owner
24 to decide when and under what circumstances they

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1 want to make creative additions to their game? And
2 how is their attention with preservation in that
3 context?

4 MS. ROSE: There's sort of two issues
5 that I want to bring up in response to that. One
6 is that you're correct, there are a variety of issues
7 that are addressed in patches.

8 They tend to be bundled together and so
9 isolating one patch from the one that comes out a
10 week later, this one is a security patch and this
11 one is an aesthetic patch, it's usually functionally
12 impossible because there's elements of all of them
13 that are mixed in.

14 And a lot of times, the functionality
15 elements of the game in these patches, updating
16 functionality, bug fixes, they're mandatory.
17 Because of the nature of an MMO, all players must
18 have this, and so its uniformity is really one of
19 the key aspects of these.

20 So you cannot decline to update when --
21 I'm going to get really nerdy here -- when they
22 nerfed the undead priest in World of Warcraft, which
23 is one of the great tragedies of my high school life,
24 they changed the stats for one particular class.

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1 Everyone playing the game had to accept
2 these changes to that class. It had to be universal
3 across the board or you were not allowed to log in.

4 The second point is that the issue of
5 authors writ large attempting to make broad creative
6 revisions to their works is not unique to
7 videogames.

8 We run into this specifically, in
9 another very nerdy case, in Star Wars.

10 If you look at the original trilogy
11 episodes 4, 5, and 6, there was an ongoing gripe
12 among the Star Wars fan base community that George
13 Lucas, when he sort of issued the re-issues in the
14 late '90s, pulled all of the older original versions
15 of the movie from circulation and you cannot obtain
16 them commercially today.

17 And he has gone on record in interviews
18 saying, well, that earlier version prior to CGI
19 wasn't the most perfect version and I believe that
20 it is my right to pull these earlier iterations of
21 my work from circulation until I feel it is perfect.

22 To which our response is, rationally,
23 and I think also this holds up in copyright law,
24 once it has been issued into the stream of commerce,

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1 you don't continue to have the right to undo that.

2 And to pull it from the stream of
3 commerce until you feel more satisfied with it.

4 MS. SMITH: Are you talking about the
5 first-sale doctrine?

6 MS. ROSE: Yes, that's part of it. I was
7 speaking more on a philosophical level but that is
8 correct.

9 And again, I acknowledge that
10 first-sale doctrine in the context of things like
11 videogames and digital distribution runs into a lot
12 of problems.

13 So I don't want to lean into that too
14 much except to flag that this idea that I have the
15 right to revise my creative vision at any time is
16 a very suspect claim, not only from a legal
17 perspective when you get the first-sale doctrine,
18 but also from a philosophical one as to functionally
19 how copyright actually works.

20 MS. SMITH: Okay, so I think we're going
21 to try to keep moving to be mindful of time. Do you
22 have more questions, Mr. Riley, on Class 8?

23 Does anyone else wish to chime in on
24 Class 8? Hearing none, can we shift to Class 11

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1 avionics?

2 MS. ROSE: Sure, Class 11 avionics I
3 mostly just wanted to present myself.

4 If there were folks who had any questions
5 for the record, I am unfortunately not Bruce Jackson
6 and so I will not be able to speak directly to a
7 lot of the more technical aspects, except to the
8 extent that I can speak at a high level about them.

9 But I wanted to make myself available
10 to fill in any gaps in the record.

11 MS. SMITH: I guess one question I have
12 is would you draw an analogy for this petition to
13 the current one for device on medical data?

14 Do you think that what -- so this is an
15 exemption for access to aircraft flight operations
16 maintenance and security data captured by computer
17 programs. Is that data itself a copyrightable work?

18 MS. ROSE: That would be something Bruce
19 would be better to answer. My understanding from
20 speaking with him and others in this field is yes
21 and no.

22 MS. SMITH: Is it structured or
23 unstructured data, do you know?

24 MS. ROSE: So, it is structured, it's

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1 structured according to open-source standards but
2 a lot of this -- so, it's a combination of a couple
3 of things.

4 One is the raw data coming in off things
5 like wing sensors that measures things like air
6 speed and so on and so forth.

7 The other I know is specifically of
8 interest to Air Informatics is doing things like
9 security penetration testing, which tends to fall
10 more in line with the sort of inquiry of the
11 security-testing panel from a few days ago in terms
12 of being able to do not only compliance work, to
13 come into compliance with FAA mandates about
14 on-board computer security, but also to do things
15 like check for holes in the supply chain, that kind
16 of thing.

17 And that does require interfacing with
18 copyrighted software.

19 Some of this is raw data that they're
20 seeking and some of it is interfacing with
21 copyrighted software.

22 And to the extent that those are
23 separable, I believe you have to ask Bruce, frankly,
24 because that's about the limit of my technical

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1 knowledge on it.

2 MR. RILEY: This also may be a question
3 for Bruce but I wonder if you have any sense of to
4 what extent the aircraft manufacturers do or don't
5 make this information available to the people
6 seeking it?

7 Is it that they just flat refuse to
8 provide it? Or is it that they typically seek a
9 license? I would be interested in any information
10 you have about that.

11 MS. ROSE: So, my understanding is that,
12 essentially, the way the supply chain works on these
13 issues is there's the onboard computer, which
14 typically is manufactured by GE or Honeywell that
15 tend to be the two dominant players in this case.

16 They're then purchased by Boeing I
17 believe subject to a maintenance agreement that says
18 the only people, and this is somewhat similar to
19 the BMW repair case from a few years ago, where the
20 only people who may perform any of this testing for
21 compliance are licensed GE or Honeywell
22 technicians.

23 The results, when you go to get that
24 compliance testing done, my understanding is that

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1 most of the time, you literally just get a
2 certificate that says you have passed security
3 compliance. There's no details in it.

4 Once in a while, my understanding is that
5 you can get something slightly more detailed but
6 it is not comparable to the amount of data that would
7 actually be obtainable if someone like Air
8 Informatics were to go in and be able to do that
9 for the client.

10 MR. RILEY: So, once they get the
11 statement back that says everything checked out but
12 it doesn't have the more detailed information, do
13 you have any sense of whether they've gone back then
14 to the authorized provider to ask for that data?

15 Is it just a situation where if they've
16 done that, it's refused? Has there been a next step
17 after that process?

18 MS. ROSE: I do not know.

19 MS. SMITH: Do you have a sense for --
20 I kind of want to get at ownership of the aircraft
21 versus ownership of the avionic system.

22 I'm not sure what is typical, maybe Mr.
23 Jackson will be in a better position to answer, but
24 in terms of who is the owner or the licensee of the

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1 copyrighted work that this exemption will allow
2 circumvention of the TPM of?

3 Is it Boeing? Is it Honeywell? Is it
4 someone who's bought an airplane?

5 MS. ROSE: I believe it would be
6 Honeywell is the actual software ownership. You'd
7 have to ask Mr. Jackson for a more specific -- my
8 understanding of it is that the physical plane can
9 be owned or can be leased.

10 I believe the more typical situation is
11 that an operator like Southwest or United leases
12 their planes from Boeing. But the operator also is
13 the one I believe who performs the security, who
14 is required to comply with FAA regulations.

15 So they're the ones that have the
16 regulatory compliance burden but in I believe many
17 cases, if not most, they are actually the leasing
18 body and not the owning body.

19 MS. SMITH: And is it Public Knowledge's
20 belief that were this exemption to be recommended
21 and adopted, the activity is not infringing under
22 107? Is it also 117 or just 107?

23 MS. ROSE: 107, I believe.

24 MS. SMITH: All right, well, thank you

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1 very much, we appreciate both of you for
2 participating and for adding this information to
3 the record. So, I think that's it. Thank you.

4 (Whereupon, the above-entitled matter
5 went off the record at 11:47 a.m.)

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