PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

In the Matter of **CERTAIN MAGNETIC DATA STORAGE TAPES AND CARTRIDGES CONTAINING THE SAME (II)**	**Inv. No. 337-TA-1076**

COMMISSION OPINION

This opinion sets forth the Commission's final determination on the issues under review and remedy, the public interest, and bonding in the above-captioned investigation. The Commission has determined that respondents Sony Corporation of Tokyo, Japan; Sony Storage Media Solutions Corporation of Tokyo, Japan; Sony Storage Media Manufacturing Corporation of Miyagi, Japan; Sony DADC US Inc. ("Sony DADC") of Terre Haute, Indiana; and Sony Latin America Inc. ("Sony Latin America") of Miami, Florida (collectively, "Sony") violated 19 U.S.C. § 1337, as amended ("Section 337") by way of infringing claims 1-5 of U.S. Patent No. 6,630,256 ("the '256 patent") and claims 1, 7, 11, and 12 of U.S. Patent No. 7,011,899 ("the '899 patent"). The Commission has found no violation with respect to U.S. Patent Nos. 6,462,905 ("the '905 patent") or 6,835,451 ("the '451 patent"). The Commission has determined to enter a limited exclusion order against Sony and cease and desist orders directed to Sony's U.S. subsidiaries, Sony DADC and Sony Latin America. The Commission has further determined to set a bond rate of: (a) 10.4 percent of entered value for Sony's branded LTO-4 tapes; (b) 7.9 percent of entered value for Sony's branded LTO-6 tapes; and (c) 16.8 percent of entered value for Sony's OEM LTO-6 tapes during the period of Presidential review.

I. BACKGROUND

A. Procedural History

The Commission instituted the present investigation on October 25, 2017, based on a complaint filed by Fujifilm Corporation of Tokyo, Japan and Fujifilm Recording Media U.S.A., Inc. of Bedford, Massachusetts (collectively, "Fujifilm"). 82 *Fed. Reg.* 49421-22 (Oct. 25, 2017). The complaint alleged Sony violated Section 337 by importing into the United States, selling for importation, or selling in the United States after importation certain magnetic data storage tapes and cartridges containing the same that infringe one or more of the asserted claims of Fujifilm's '256, '899, '905, or '451 patents.[1] *Id.* The notice of investigation named Sony as a respondent. *Id.* The Office of Unfair Import Investigations ("OUII") was also named as a party to the investigation. *Id.*

The accused products are Sony's LTO-4, LTO-5, LTO-6, and LTO-8 magnetic data storage tapes and tape cartridges. Fujifilm's domestic industry is represented by its own LTO tape products. "LTO" refers to "linear tape open," an open-format storage tape technology. *See* https://searchdatabackup.techtarget.com/definition/Linear-Tape-Open-LTO (last viewed June 3, 2019). LTO-4, LTO-5, etc., refers to sequential LTO-compliant product generations, which represent improvements in storage capacity, data transfer rates, or other attributes. *Id.*

On June 25-29, 2018, the presiding administrative law judge ("ALJ") held an evidentiary hearing on issues relating to the '256, '899, '905, and '451 patents. By the time of the hearing, the remaining asserted claims were claims 1-5 of the '256 patent; claims 1, 2, 7, 11, and 12 of the '899 patent; claims 1-3 of the '905 patent; and claims 3, 5, and 12-14 of the '451 patent.

[1] Fujifilm also originally asserted U.S. Patent No. 6,783,094 ("the '094 patent"), but later withdrew the '094 patent and certain claims of the remaining patents. *See* Comm'n Notice (Apr. 17, 2018) (*aff'g* Order No. 11); Comm'n Notice (July 9, 2018) (*aff'g* Order No. 17); ID at 2-3.

On October 25, 2018, the ALJ issued a combined initial determination ("ID") on violation issues and a recommended determination ("RD") on remedy, the public interest, and bond rates during the period of Presidential review. The ALJ found that Sony violated Section 337 by way of infringing one or more of the asserted claims of the '256 and '899 patents, and that none of the asserted claims of either patent was shown to be invalid. ID at 170-71. The ALJ also found that Sony did not infringe any valid asserted claim of either the '451 or '905 patent. *Id.* The ALJ recommended that the Commission issue a limited exclusion order against Sony and cease and desist orders against its two U.S. subsidiaries, Sony DADC and Sony Latin America. RD at 172-80. The ALJ also recommended imposing a bond during the period of Presidential review, with different rate to be imposed on different LTO product generations. *Id.*

On November 9, 2018, all parties, including OUII, filed a petition with the Commission to review some portion of the ID. The parties filed their respective replies on November 20, 2018, and their submissions on the public interest on November 26, 2018.

Following the partial government shutdown in January 2019, the Commission issued, on March 15, 2019, a notice of its determination to review the ID in part with respect to the '256, '899, and '905 patents, but not with respect to the '451 patent. In particular:

- With respect to the '256 patent, the Commission determined to review the ID's finding that the sample tapes Fujifilm tested for domestic industry purposes were representative of Fujifilm's other LTO tapes. The Commission did not review and thus adopted the ID's findings that claims 1-5 are infringed and not obvious.

- With respect to the '899 patent, the Commission determined to review the ID's interpretation and application of limitations on the number of surface projections having certain heights "per 6400 μm^2." The Commission also determined to review whether test results taken from different Sony tape samples during different investigations could be combined for purposes of proving infringement of dependent claim 2. The Commission further reviewed the ID's finding that the asserted claims of the '899 patent are not invalid as obvious.

- With respect to the '905 patent, the Commission determined to review the ID's finding that claim 3 is invalid due to an on-sale bar but was not anticipated by or

> obvious in view of the prior art. The Commission did not review the ID's findings that claim 3, if valid, is infringed but claims 1-2 are not infringed.

See 84 *Fed. Reg.* 10532-34 (Mar. 21, 2019)

On March 29, 2019, Fujifilm, Sony, and OUII filed their respective responses to the Commission's questions on review.[2] On April 5, 2019, the parties filed their respective replies.[3] On May 6, 2019, the Commission issued a notice of its determination to extend the target date for completion of this investigation to June 6, 2019. Comm'n Notice (May 6, 2019).

II. STANDARD OF REVIEW

Once the Commission determines to review an initial determination, it conducts its review *de novo*. *Certain Magnetic Data Storage Tapes and Cartridges Containing Same ("Storage Tapes I")*, Inv. No. 337-TA-1012, Comm'n Op. at 12 (March 8, 2018). Upon review, the "Commission has 'all the powers which it would have in making the initial determination,' except where the issues are limited on notice or by rule." *Id.* (quoting *Certain Flash Memory Circuits and Prods. Containing Same*, Inv. No. 337-TA-382, USITC Pub. 3046, Comm'n Op. at 9-10 (July 1997) (internal quotations omitted)). Commission practice in this regard is consistent with the Administrative Procedure Act, 5 U.S.C. § 551 *et seq*. *Storage Tapes I*, Inv. No. 337-TA-1012, Comm'n Op. at 12; *see also* 5 U.S.C. § 557(b).

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[2] Complainants Fujifilm Corporation and Fujifilm Recording Media U.S.A., Inc.'s Opening Brief Regarding Commission Review ("Fujifilm's Br."); Respondents' Initial Written Submission in Response to the Commission's Determination to Review in Part a Final Initial Determination ("Sony's Br."); Commission Investigative Staff's Response to the Commission's Request for Written Submissions on the Issues Under Review and on Remedy, the Public Interest, and Bonding ("OUII's Br.").

[3] Complainants Fujifilm Corporation and Fujifilm Recording Media U.S.A., Inc.'s Opening Brief Regarding Commission Review ("Fujifilm's Reply"); Respondents' Reply to Complainants' and OUII's Written Submissions in Response to the Commission's Determination to Review in Part a Final Initial Determination ("Sony's Reply"); Commission Investigative Staff's Reply to the Parties' Responses to the Commission's Request for Written Submissions ("OUII's Reply").

Upon review, "the Commission may affirm, reverse, modify, set aside or remand for further proceedings, in whole or in part, the initial determination of the administrative law judge. The Commission may also make any findings or conclusions that in its judgment are proper based on the record in the proceeding." 19 C.F.R. § 210.45. This rule reflects the fact that the Commission is the body responsible for making the final agency decision. *Storage Tapes I*, Inv. No. 337-TA-1012, Comm'n Op. at 12; *see also Spansion, Inc. v. Int'l Trade Comm'n*, 629 F.3d 1331, 1349 (Fed. Cir. 2010) (only the Commission's final determination is at issue on appeal).

III. RELEVANT LAW

Section 337 prohibits, *inter alia*, "[t]he importation into the United States, the sale for importation, or the sale within the United States after importation . . . of articles that infringe a valid and enforceable United States patent . . . ." 19 U.S.C. § 1337(a)(1)(B). Infringement is found where an accused product or process practices each and every limitation of a patent claim, either literally or under the doctrine of equivalents. *Cross Medical Products, Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1310-11 (Fed. Cir. 2005).

A. Claim Construction

The first step of any infringement analysis is to construe, or interpret, any disputed terms in the asserted patent claims. *SafeTCare Mfg., Inc. v. Tele-Made, Inc.*, 497 F.3d 1262, 1268 (Fed. Cir. 2007) (citing *Cybor Corp. v. FAS Techns., Inc.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998) (*en banc*)). Claim construction "begin[s] with and remain[s] centered on the language of the claims themselves." *Storage Tech. Corp. v. Cisco Sys., Inc.*, 329 F.3d 823, 830 (Fed. Cir. 2003). Claim terms are normally construed according to their ordinary and customary meaning in the art, as understood by a person of ordinary skill in the art at the time of the invention. *Continental Circuits LLC v. Intel Corp.*, 915 F.3d 788, 796 (Fed. Cir. 2019) (citing *Phillips v. AWH*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (*en banc*)). In cases where a claim term does not have a

particular meaning in the relevant technical art, its construction may involve little more than applying widely accepted meanings of commonly understood words. *Phillips*, 415 F.3d at 1314. But where a claim term has a specialized meaning, it is necessary to determine what a person skilled in the art would have understood the disputed claim language to mean. *Id.*

The Commission looks primarily to intrinsic sources, *i.e.*, the language of the claims themselves, the remainder of the specification (of which the claims are a part), and the patent's prosecution history, to determine the meaning of a claim term and whether the inventor used it in an idiosyncratic manner. *See Continental Circuits*, 915 F.3d at 796. The specification may also indicate whether the inventor intended to give a special meaning to a claim term that differs from its original meaning or, alternatively, to disclaim or disavow some measure of claim scope. *Id.* (discussing *Phillips*, 415 F.3d at 1316). As a general rule, embodiments or examples in the specification may shed light on the meaning of claim terms, but they should not be read into the claims as limitations where they are not necessary. *Markman,* 52 F.3d at 978-79

The Commission should also consider the patent's prosecution history, where it is in evidence, as it provides contemporaneous evidence as to how the inventor and the U.S. Patent and Trademark Office ("PTO") understood the term. *See Continental Circuits*, 915 F.3d at 796. The prosecution history, however, often lacks the clarity of the specification and is often less useful for claim construction purposes because it reflects an ongoing negotiation between the inventor and the PTO rather than the final product of that negotiation. *Id.*

The Commission may also look to extrinsic evidence, such as expert and inventor testimony, dictionaries, learned treatises, and other evidence external to the patent and its prosecution history, to discern the scope and meaning of a claim term. *Id.* at 799. Extrinsic evidence may also be useful in understanding relevant scientific principles, the meaning of

technical terms, and the state of the art. *Id.* at 796. Nonetheless, extrinsic evidence is generally regarded as less reliable than intrinsic evidence and cannot be used to override the meaning of claim terms provided by the intrinsic evidence. *Id.* at 799. "The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Phillips*, 415 F.3d at 1316.

B. Infringement

Patent infringement under Section 337 includes "all forms of infringement, including direct, contributory, and induced infringement." *Suprema Inc. v. Int'l Trade Comm'n*, 796 F.3d 1338, 1352-53 (Fed. Cir. 2015). A preponderance of the evidence is required to prove infringement. *Spansion*, 629 F.3d at 1349.

After construing any disputed claim terms, the next step is to compare the properly construed claim to the allegedly infringing product or process. *SafeTCare*, 497 F.3d at 1268. Literal infringement is found where every limitation of a claim literally reads on, or is found in, the accused product or process. *Duncan Parking Techns., Inc. v. IPS Group, Inc.*, 914 F.3d 1347, 1360 (Fed. Cir. 2019). If literal infringement is not found, infringement may still be found under the doctrine of equivalents if there is equivalence between the elements of accused product and the claimed elements of the patented invention, subject to prosecution history estoppel, claim vitiation, and other constraints. *See Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 21 (1997); *Microsoft Corp. v. GeoTag, Inc.*, 817 F.3d 1305, 1313 (Fed. Cir. 2016); *Advanced Steel Recovery, LLC v. X-Body Equipment, Inc.*, 808 F.3d 1313, 1319 (Fed. Cir. 2015).

C. Validity

One cannot be held liable for practicing an invalid patent claim. *Pandrol USA, LP v. AirBoss Railway Prods., Inc.*, 320 F.3d 1354, 1365 (Fed. Cir. 2003). Patent claims are presumed

valid upon issuance. 35 U.S.C. § 282. Nonetheless, there are multiple bases by which a patent claim may be found invalid, such as anticipation (35 U.S.C. § 102), obviousness (35 U.S.C. § 103), or failure to comply with requirements of definiteness, written description, or enablement (35 U.S.C. § 112).[4] The burden is on the challenger to prove by clear and convincing evidence that a claim is invalid. *Norgren Inc. v. International Trade Comm'n*, 699 F.3d 1317, 1322 (Fed. Cir. 2012); *Tessera, Inc. v. International Trade Comm'n*, 646 F.3d 1357, 1366 (Fed. Cir. 2011).

1. Anticipation

A patent claim is invalid if "the invention was patented or described in a printed publication in this or a foreign country . . . , more than one year prior to the date of the application for patent in the United States." 35 U.S.C. § 102(b) (pre-AIA). To invalidate a patent claim on the grounds of anticipation (lack of novelty), a challenger must prove by clear and convincing evidence that a single prior art reference discloses each and every limitation of the claim. *Tessera*, 646 F.3d at 1366; *Spansion*, 629 F.3d at 1355-56. The prior art reference must disclose each such claim limitation either expressly or inherently, where "inherent anticipation" requires that any element that is not expressly disclosed, or "missing," in that reference must be "necessarily present, not merely probably or possibly present, in the prior art [reference]." *Tintec Indus., Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1295 (Fed. Cir. 2002). Anticipation, including inherency, is a question of fact. *Motorola Mobility, LLC v. International Trade Comm'n*, 737 F.3d 1345, 1348 (Fed. Cir. 2013).

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[4] These and other sections of the patent statutes, title 35 of the United States Code, were amended by the "America Invents Act" ("AIA"), P.L. 112-92, 125 Stat. 284 (Sept. 16, 2011). The AIA's amendments to sections 102 and 103 went into effect on March 16, 2013. All of the patents in suit issued from applications filed before that date and are thus subject to the pre-AIA statutes. *See Acceleration Bay, LLC v. Activision Blizzard Inc.*, 908 F.3d 765, 772 n.6 (Fed. Cir. 2018); *Belden Inc. v. Berk-Tek LLC*, 610 F. App'x 997, 998 n.1 (Fed. Cir. 2015).

Anticipation further requires that the prior art's disclosures must be sufficient to enable a person of ordinary skill in the art to practice the claimed invention "without undue experimentation." *In re Gleave*, 560 F.3d 1331, 1334-35 (Fed. Cir. 2009). A prior art reference is presumably enabled for invalidity purposes, but a patentee may overcome this presumption by presenting evidence of nonenablement. *Impax Labs., Inc. v. Aventis Pharms. Inc.*, 468 F.3d 1366, 1382 (Fed. Cir. 2006). "[W]hether a prior art reference is enabling is a question of law based on underlying factual findings." *Gleave*, 560 F.3d at 1335.

2. On-Sale Bar

A patent claim is also invalid if "the invention was . . . in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States." 35 U.S.C. § 102(b) (pre-AIA). The on-sale bar is intended to prevent a patentee from using the claimed invention, after it is ready for patenting, "for a profit, and not by way of experiment," for more than one year before filing for a patent application. *Quest Integrity USA, LLC v. Cokebusters USA Inc.*, __ F.3d __, 2019 WL 2180591, *5 (Fed. Cir. May 21, 2019) (quoting *Pfaff v. Wells Electronics, Inc.*, 525 U.S. 55, 67 (1998)). In other words, the inventor "must content himself with either secrecy, or legal monopoly." *Id.* (quoting *Pfaff*, 525 U.S. at 68).

The party asserting invalidity pursuant to this "on-sale bar" must prove, by clear and convincing evidence, that the object of the alleged sale or use met each and every limitation of the contested claim, and thus was an embodiment of the claimed invention. *Juicy Whip, Inc. v. Orange Bang, Inc.*, 292 F.3d 728, 737-38 (Fed. Cir. 2002). The object of the sale must meet each claim limitation expressly or inherently, which requires that each claim limitation must necessarily be present. *See Quest Integrity*, 2019 WL 2180591, at *5; *Tintec*, 295 F.3d at 1295.

An on-sale bar further requires: (1) "the product must be the subject of a commercial offer for sale"; and (2) "the invention must be ready for patenting." *Pfaff*, 525 U.S. 55, 67 (1998). The former condition may be satisfied by a commercial offer to sell or a sale of the product, but actual delivery of the product prior to the critical date is not required. *Helsinn Healthcare S.A. v. Teva Pharms. USA, Inc.*, 855 F.3d 1356, 1370 (Fed. Cir. 2017) (discussing pre-AIA § 102(b)), *aff'd*, 139 S. Ct. 628 (2019); *Medicines Co. v. Hospira Inc.*, 881 F.3d 1347, 1351 (Fed. Cir. 2018) (*en banc*). The sale must also be public, but this does not mean that the invention itself must be made public. *Helsinn*, 139 S. Ct. at 633. Even "secret sales" may create an invalidating on-sale bar in certain cases. *Id.* An "experimental use," however, can in some cases negate applicability of the on-sale bar. *Barry*, 914 F.3d at 1331; *but see, e.g., Atlanta Attachment Co. v. Leggett & Platt, Inc.*, 516 F.3d 1361, 1365-66 ("once there has been a commercial offer [for sale], there can be no experimental use exception").

The latter condition ("ready for patenting") may be satisfied either "by proof of reduction to practice before the critical date" or "by proof that prior to the critical date the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention." *Hamilton Beach Brands, Inc. v. Sunbeam Prods., Inc.*, 726 F.3d 1370, 1377 (Fed. Cir. 2013). In *Pfaff*, for example, the Supreme Court found the product that was the object of the sale was ready for patenting because, prior to the critical date, the patentee had sent drawings to the manufacturer that "fully disclosed the invention," but not the product itself. 525 U.S. at 67-68.

3. Obviousness

A patent claim is also invalid "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at

the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103 (pre-AIA). Obviousness is a question of law based on underlying facts and must be proven by clear and convincing evidence. *Intercontinental Great Brands LLC v. Kellogg North America Co.*, 869 F.3d 1336, An1343-44 (Fed. Cir. 2017).

The underlying factual inquiries for obviousness, known as the *Graham* factors, include consideration of: (1) the scope and content of the prior art; (2) the difference between the prior art and the claimed invention; (3) the level of ordinary skill in the pertinent art (the field of the invention); and (4) any relevant objective evidence of non-obviousness, such as commercial success of the invention, long-felt but unmet need of the invention, or failure of others to achieve it. *ZUP, LLC v. Nash Mfg., Inc.*, 896 F.3d 1365, 1371 (Fed. Cir. 2018), *cert. denied*, No. 18-823, 2019 WL 659872 (U.S. Feb. 19, 2019) (citing *Graham v. John Deere Co.,* 383 U.S. 1, 17-18 (1966)). A party asserting obviousness must also show that a person skilled in the art had a reason to combine the asserted pieces of prior art in the way that was eventually claimed in the patent at issue, and that such a skilled artisan would have had a reasonable expectation of success in doing so. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421, 427 (2007); *Senju Pharm. Co. v. Lupin Ltd.*, 780 F.3d 1337, 1341 (Fed. Cir. 2015) ("a defendant asserting obviousness in view of a combination of references has the burden to show by clear and convincing evidence that a person of ordinary skill in the relevant field had reason to combine the elements in the manner claimed."). Obviousness, moreover, requires only a reasonable expectation of success, not proof of actual success. *Endo Pharms. Inc. v. Actavis LLC*, 922 F.3d 1365, 1379 (Fed. Cir. 2019).

Evidence of obviousness must be reviewed using an "expansive and flexible approach," rather than a "rigid approach to determining obviousness based on disclosures of individual prior-art references[.]" *Intercontinental Great Brands*, 869 F.3d at 1344 (citing *inter alia KSR*,

550 U.S. at 415, 419-22). "While anticipation is proven based on the express and inherent teachings of a single prior art reference, an obviousness analysis reaches beyond the prior art reference and takes into account other considerations such as the level of ordinary skill in the art and any objective indicia of nonobviousness." *Vivint, Inc. v. Alarm.com, Inc.*, 741 Fed. Appx. 786, 791-92 (Fed. Cir. July 26, 2018) (unpublished) (citing *Cohesive Techns., Inc. v. Waters Corp.*, 543 F.3d 1351, 1364 (Fed. Cir. 2008)). In particular, obviousness must also consider "the knowledge, creativity, and common sense that an ordinarily skilled artisan would have brought to bear when considering combinations or modifications," the "inferences and creative steps that a person of ordinary skill in the art would employ," and "demands known to the design community." *Intercontinental Great Brands*, 869 F.3d at 1344 (internal quotes omitted).

With these principles in mind, courts have found that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Norgren*, 699 F.3d at 1322 (quoting *KSR*, 550 U.S. at 416). Also, "one of the ways in which a patent's subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent's claims." *Id.* (quoting *KSR*, 550 U.S. at 419-20). "[A]ny need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Id.* (quoting *KSR*, 550 U.S. at 420). This may include, but is not limited to, the particular problem motivating the patentee. *See id.* Moreover, "if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, [then] using the technique is obvious unless its actual application is beyond his or her skill." *Intercontinental Great Brands*, 869 F.3d at 1344 (quoting *KSR*, 550 U.S. at 417). Likewise, "[w]hen there is a

design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." *KSR*, 550 U.S. at 421.

When a patent is challenged for obviousness, the patentee may present objective evidence (also called secondary considerations) of non-obviousness, such as a long-felt but unmet need for the invention, its commercial success, failure of others, unexpected results, or copying. The patentee must also demonstrate a nexus between the alleged secondary considerations and the merits of the invention. *See Bosch Automotive Service Solutions, LLC v. Matal*, 878 F.3d 1027, 1038 (Fed. Cir. 2017); *In re Huai-Hung Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011). Objective evidence of non-obviousness must be considered in every case in which it is presented. *Apple Inc. v. Samsung Electronics Co.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016).

D. Domestic Industry

Section 337 states that it is unlawful to import into the United States, sell for importation, or sell in the United States after importation articles that infringe a valid and enforceable U.S. patent "only if an industry in the United States, relating to articles protected by the patent . . . concerned, exists or is in the process of being established." 19 U.S.C. § 1337(a)(2); *Certain Ammonium Octamolybdate Isomers*, Inv. No. 337-TA-477, Comm'n Op. at 55 (Jan. 2004). This "domestic industry requirement" consists of an economic prong (*i.e.*, the activities of, or investment in, a domestic industry) and a technical prong (*i.e.*, whether the complainant practices its own patents). *Certain Stringed Musical Instruments and Components Thereof*, Inv. No. 337-TA-586, Comm'n Op. at 12-14, 2009 WL 5134139 (Dec. 2009). The complainant bears the burden of establishing that the domestic industry requirement is satisfied. *See Certain Set-Top*

Boxes and Components Thereof, Inv. No. 337-TA-454, Final Initial Determination at 294, 2002 WL 31556392 (June 21, 2002) (unreviewed by Commission in relevant part).

The technical prong of the domestic industry requirement is satisfied when the complainant in a patent-based Section 337 investigation establishes that it is practicing or exploiting the patents at issue, *e.g.*, through engineering, research, development or licensing. *See* 19 U.S.C. § 1337(a)(3)(C). The test for proving that the complainant is practicing the claimed invention "is essentially the same as that for infringement, *i.e.*, a comparison of the domestic products to the asserted claims." *Crocs, Inc. v. International Trade Comm'n*, 498 F.3d 1294, 1306-07 (Fed. Cir. 2010) (quoting *Alloc, Inc. v. International Trade Comm'n*, 342 F.3d 1361, 1375 (Fed. Cir. 2003). "In other words, the technical prong requires proof that the patent claims cover the articles of manufacture that establish the domestic industry. Put simply, the complainant must practice its own patent." *Id.* It is not necessary, however, for the complainant to show that it is practicing the same claims it is asserting for infringement purposes. *Certain Ammonium Octamolbydate Isomers*, Inv. No. 337-TA-447, Comm'n Op. at 55 (Jan. 2004). Rather, "it is sufficient to show that the domestic industry practices any claim of that patent, not necessarily an asserted claim of that patent." *Id.* The complainant may show it is practicing the asserted domestic industry claims either literally or under the doctrine of equivalents, as is the case for infringement. *See Certain Refrigerators and Components Thereof*, Inv. No. 337-TA-632, Comm'n Op. at Remand at 66-67 (Mar. 11, 2010) (public version) (affirming the Final ID's finding that the complainant satisfied the technical prong under the doctrine of equivalents).

With respect to the economic prong, the Commission has held that "whether a complainant has established that its investment and/or employment activities are significant with respect to the articles protected by the intellectual property right concerned is not evaluated

according to any rigid mathematical formula." *Certain Printing and Imaging Devices and Components Thereof*, Inv. No. 337-TA-690, Comm'n Op. at 27 (Feb. 17, 2011). Rather, the Commission examines "the facts in each investigation, the article of commerce, and the realities of the marketplace." *Id.* "The determination takes into account the nature of the investment and/or employment activities, 'the industry in question, and the complainant's relative size.'" *Id.* (quoting *Stringed Musical Instruments* at 26).

IV. ANALYSIS OF ISSUES UNDER REVIEW

A. Review Of The '256 Patent

1. Background on the '256 Patent

A magnetic data storage tape typically comprises multiple layers: (i) a nonmagnetic lower supporting layer comprising an inorganic powder and a binder; (ii) an upper magnetic layer comprising a ferromagnetic powder and a binder in that order; and (iii) a backcoating layer on the opposite surface of the tape. *See* '256 patent at 3:58-64. The inventors of the '256 patent reported that deformation of the tape edge and other wear and tear on magnetic tapes can be reduced by limiting the density and mean diameter of filler particles in the magnetic tape's backcoating layer. *Id.* at 3:47-4:57. For example, the inventors found that tape performance can be optimized by limiting the mean (average) diameter of inorganic powder particles in the support layer to 40 to 200 nanometers ("nm")[5], and limiting the number of such particles to 10-200 particles per 100 μm^2.[6] *Id.* at 3:58-4:15, 4:33-57.

Fujifilm accuses Sony's LTO-4, LTO-5, and LTO-6 tapes of infringing claims 1-5 of the '256 patent. Representative claim 1 is below, with the terms of interest in underlined italics:

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[5] A nanometer ("nm") is 1 billionth of a meter.

[6] A "μm^2" refers to a unit area measuring one micron by one micron, where one micron ("μm") is one-millionth of a meter. A unit area measuring 100 μm^2 is equal to a square 10 μm x 10 μm.

> 1. A magnetic recording medium having on one surface of a nonmagnetic support a lower layer comprising an inorganic powder and a binder and an upper magnetic layer comprising a ferromagnetic powder and a binder in that order, and having on the other surface thereof a backcoating layer, wherein:
>
> said nonmagnetic support comprises inorganic powder particles with *a mean primary particle diameter in a range of from 40 to 200 nm*;
>
> the number of particles of said inorganic powder in the cross-section of said nonmagnetic support is in *a range of from 10 to 200/100 μm²*,
>
> said magnetic layer exhibits a coercivity in a range of from 159 to 239 kA/m; and,
>
> the overall thickness is equal to or less than 8 μm.

'256 patent at 29:50-65 (emphasis added). Dependent claims 2-5 generally narrow the recited ranges, *e.g.*, "40 to 180 nm" in claim 2 or "10 to 180/100 μm^2" in claim 3. *Id.* at 29:66-30:35.

2. The ID

The ID finds that Sony infringes asserted claims 1-5 of the '256 patent and Sony did not prove that any of the asserted claims are invalid. ID at 170. The parties did not petition the Commission to review the ID's findings on infringement or validity, and the Commission did not *sua sponte* review those findings. Thus, those findings have become the final determination of the Commission, pursuant to Commission Rule 210.43(b)(2), 19 C.F.R. § 210.43(b)(2).

The ID also finds that Fujifilm satisfied the technical prong of the domestic industry requirement by showing that a single sample of each of its LTO-4, LTO-5, and LTO-6 tape products practiced the asserted claims, including the particle size and density limitations. ID at 32-34. The ID bases its conclusion, over Sony's objections, on its finding that the sample LTO tapes Fujifilm tested were sufficiently representative of Fujifilm's entire LTO product lines to establish that Fujifilm has a domestic industry. *Id.* The ID points to "unrebutted evidence" that [[

]] Sony, the ID further finds, put forth "no evidence of its own" that would call into question the evidence of representativeness proffered by Fujifilm. The ID concludes, "[a]lthough Fujifilm does not present any direct evidence that the mean particle diameter or particle density are substantially the same across tapes of each generation, the evidence showing that the tapes are stringently manufactured to be uniform is sufficient circumstantial evidence in this case to conclude that each property of the tape is uniform." *Id.*

3. Analysis and Determination

The Commission determined to review the ID's finding that the sample LTO tapes that Fujifilm tested are representative of other Fujifilm LTO tapes for purposes of satisfying the technical prong of the domestic industry requirement.[7] Comm'n Notice, 84 *Fed. Reg.* at 10533 (Question A).

Sony contends "there is no evidence at all suggesting that the tested LTO tapes have filler particle characteristics representative of other Fujifilm tapes in the same generation." Sony's Br. at 1. Sony argues that Fujifilm[[ ]], has produced no technical documents, vendor specifications, manufacturer instructions, communications between Fujifilm and [[ ]], or any other evidence to show that the filler particle sizes or densities measured by Fujifilm in its sample LTO tapes are somehow representative of

[7] The Commission discusses the issue of whether the sample LTO tapes that Fujifilm tested are sufficiently representative of its other LTO tape products of the same generation in order to address the parties' arguments. The parties' arguments are presented in the context of Fujifilm's burden to show the existence of "articles protected by the patent" under Section 337(a)(2). The Commission's discussion addressing the parties' arguments, however, should not be interpreted as adopting or endorsing a new rule of general application for establishing the existence of "articles protected by the patent" under Section 337(a)(2). In other words, the Commission's discussion does not adopt a rule that requires the complainant to establish that a domestic industry article, which practices an asserted claim, also be "representative" of other products characterized by the same designation (*e.g.*, product generation, model number, batch number, SKU, etc.).

the millions of other such LTO tapes made and sold by Fujifilm. *Id.* at 1-4. Sony claims the [[ ]], let alone control particle sizes or densities as required by the '256 patent claims. *Id.* at 3-4; Sony's Reply at 4-5. Sony further argues that Fujifilm's tests actually show a substantial variation in particle size and density and thus a lack of consistency or representativeness. Sony's Reply at 5-6. Sony also argues that the testimony by Fujifilm's expert, Dr. Clemens, is incomplete and conclusory on the representativeness of Fujifilm's samples, particularly with respect to the sizes of the filler particles in its substrates. *See, e.g.,* Hr'g Tr. (Clemens) at 244:13-245:21, 248:11-249:1.

Upon review of the parties' submissions and the record below, the Commission has determined that the sample LTO tapes that Fujifilm tested are sufficiently representative of its other LTO tape products, such that Fujifilm has proven by a preponderance of the evidence that it practices claim 1 of the '256 patent. Apart from the representativeness of Fujifilm's samples, Sony has not challenged the methodology or results of Fujifilm's tests of sample LTO tapes. *See* Respondents' Petition for Review of the Administrative Law Judge's Initial Determination ("Sony's Pet.") at 62 (Nov. 9, 2018) (stating that Fujifilm's evidence shows the three Fujifilm LTO-4, LTO-5, and LTO-6 tapes tested by its expert satisfy the claim requirements). Sony also does not cite any evidence that contradicts Dr. Clemens' evidence of representativeness, but only challenges the sufficiency of Fujifilm's evidence. *See* ID at 30, 32-33.

The Commission notes that during the time period relevant to a domestic industry analysis, Fujifilm [[ ]] – in its LTO-5 and LTO-6 tape products. JX-0021C. Likewise, Fujifilm [[ ]] in its LTO-4 products. *Id.*

Sony [[ ]], in its own LTO products. Hr'g Tr. (Clemens) at 211:11-18, 235:13-236:7; Hr'g Tr. (Kato) at 628:24-630:12.

Sony stipulated that its accused LTO products satisfy the limitations of the asserted claims of the '256 patent, with the exception of the particle diameter and density limitations. ID at 19-20 (citing Joint Stipulation Regarding Uncontested Issues, ¶ 1 (July 3, 2018)). Sony did not present any tests or other evidence to show that its accused products do not practice the disputed limitations, but only challenged the reliability and representativeness of Fujifilm's tests of sample Sony LTO tapes. ID at 23-24, 27-31. The ID rejects Sony's challenge and finds instead that Fujifilm proved that the accused Sony tapes and sample Fujifilm tapes satisfy the particle size and density limitations of the '256 patent claims. *See* ID at 20-28 (discussing *inter alia* Hr'g Tr. (Clemens) at 203:1-25, 206:1-10, 212:6-213:6, 221:-227:17, 229:1-235:12, 262:8-264:1; CX-0091; CX-0338). Sony did not petition the Commission to review the ID's finding that its LTO tapes infringe the '256 patent and has thus abandoned any objections to that finding.[8] 19 C.F.R. § 210.43(b)(2). Thus, there is presently no dispute that Sony LTO products practice the particle size, particle density, and other limitations of the '256 patent.

Sony, as noted above, [[

]]. Fujifilm also tested individual sample LTO tapes and found that they practice the '256 patent claims. ID at 32-33. Given that

[8] The ID also finds that at the evidentiary hearing, Sony "abandoned" its argument that Fujifilm failed to show that the Sony LTO tapes it tested are representative of other Sony LTO tapes. ID at 30-31 (discussing Hr'g Tr. at 1451:21-1453:3 (colloquy between ALJ and Sony's counsel)). The parties dispute whether Sony also conceded the representativeness of the sample Fujifilm LTO tapes that Fujifilm tested. The Commission finds the colloquy and ID are both unclear and ambiguous on that point. *See* Hr'g Tr. at 1451:21-1453:3; ID at 32-34. The Commission does not need to rely on any alleged concession to decide this issue, for the reasons discussed herein.

Sony LTO tapes [[ ]] practice the particle size, density, and other limitations of the '256 patent, the Commission finds that Fujifilm has shown by a preponderance of evidence that its LTO tapes satisfy those limitations as well, and its sample LTO tapes are representative of other Fujifilm tapes in the same LTO generations.

This conclusion is unaffected by Sony's contention that there were wide variations in the measurements of mean particle diameter and particle density in the tested samples, because those measurements still fall within the ranges claimed in the '256 patent despite those variations. For example, Sony claims the mean particle diameter in the Fujifilm LOT samples [[ ]] ranged from 68.4 nm in its LTO-6 tape to 95.8 nm in its LTO-5 tape, a 40% increase. Sony's Reply at 5-6 (citing CX-0091 at 24-25, 34-35). Nonetheless, both values still fall within the range of 40-200 nm recited in claim 1 of the '256 patent, and the even more narrow range of 40-180 nm recited in dependent claim 2. '256 patent at 29:56-58 (claim 1), 29:66-30:2 (claim 2). Likewise, Sony claims the filler particle density in the sample Fujifilm tapes ranged from 20.70 particles/100 μm^2 in its LTO-6 to 28.11 particles/100 μm^2 in its LTO-5 tape, a 36% increase. *See* Sony's Reply at 5-6. Once again, those values fall within 10-200 per 100 μm^2 recited in claim 1 of the '256 patent, and the even more narrow ranges of 10-180 per 100 μm^2 in dependent claim 3 or 20-200 per 100 μm^2 in dependent claim 5. *See* '256 patent at 29:59-61 (claim 1), 30:3-6 (claim 3), 30:32-35 (claim 5). Sony does not identify any measurements that fell outside the claimed ranges or challenge the representativeness of the samples. *See* Sony's Reply at 5-6.

Sony's contention that there is "no evidence" of any communications or specifications exchanged between Fujifilm and its vendors regarding filler particle size or density is also overstated. As Fujifilm points out, the record contains evidence of meetings between Fujifilm and its vendors Toray and Teijin to discuss changing the number of filler particles to reduce edge

damage. *See* Fujifilm's Reply at 5-6 (citing *inter alia* Hr'g Tr. (Street) at 1039:12-25 (discussing RX-0574); Hr'g Tr. (Clemens) at 211:11-18, 1421:10-1422:16 (same)). [[

]] – problems that the evidence shows can be addressed by limiting particle sizes and densities as recited in the '256 patent. *See* JX-011C at 193; JX-0012C at 208; JX-0014C at 205; *see also* Hr'g Tr. (Clemens) at 208:6-211:10, 1392:9-1397:24, 1423:8-1424:5.

For these reasons, the Commission concludes that there is substantial evidence to support the ID's finding that the sample LTO tapes tested by Fujifilm are representative of each of the LTO-4, LTO-5, and LTO-6 generations of Fujifilm LTO tapes, and that Fujifilm practices its '256 patent, thus satisfying the technical prong of the domestic industry requirement. The Commission previously adopted the ID's findings that Sony infringes asserted claims 1-5 of the '256 patent, that Sony has not shown that asserted claims 1-5 are valid, and that Fujifilm satisfies the economic prong of the domestic industry requirement. *See* ID at 170. The Commission thus affirms the ID's finding that Sony violated Section 337 by way of infringing the '256 patent.

B. Review of the '899 Patent

1. Background on the '899 Patent

The '899 patent is directed to reducing friction and error rates and improving tape pack quality of a magnetic recording medium by improving the backcoating layer of the tape. '899 patent at 1:5-9, 2:18-22. A backcoating layer that is too rough can degrade signal noise quality or increase error rates, whereas a backcoating layer that is too smooth can exhibit poor tape winding properties. *Id.* at 1:5-9, 1:65-2:14, 3:8-22. The invention claims these properties can be improved by limiting the number of projections per unit area on the backcoating layer that fall

within certain height ranges. *Id.* at 2:53-3:7, 3:23-28, 4:49-61, 20:29-34. The backcoating layer in a preferred embodiment has: (i) between 800-1,500 projections per 6400 μm^2 having a height between 50-75 nm; and (ii) no more than 600 projections per 6400 μm^2 having a height in excess of 75 nanometers. *See, e.g., id.* at Abstract, 2:23-30, 2:61-3:2. Sony represents that a 6400 μm^2 area, equal to an area 80 μm x 80 μm, is "about the size of a pencil eraser." Sony Br. at 9.

Fujifilm accuses Sony of infringing claims 1, 2, 7, 11, and 12 of the '899 patent. Representative claim 1 recites the following, with the claim term in dispute in underlined italics:

> 1. A magnetic recording medium comprising a backcoating layer, a support, and a magnetic layer containing ferromagnetic powder, the backcoating layer having 800 to 1500 projections of 50 nm or more and less than 75 nm in height *per 6400 μm^2* and 600 or less projections of 75 nm or more in height *per 6400 μm^2*.

'899 patent at 20:41-47 (emphasis added). Asserted dependent claims 11 and 12 further limit the projection densities (*id.* at 21:13-22:3), whereas dependent claims 2 and 7 impose limitations on the ferromagnetic particles or the properties of the magnetic layer (*id.* at 20:48-51, 21:1-2).

2. Construction of projection height, density limitations "per 6400 μm^2"

a. The ID

"The parties' sole dispute with respect to infringement of claim 1 is whether the accused magnetic recording media have a backcoating layer with a projection density of 800 to 1500 projections of 50 nm or more and less than 75 nm in height per 6400 μm^2 . . . ."[9] ID at 84-85. Fujifilm, the ID notes, argued that these projection height and density limitations should be given their plain and ordinary meaning in the art, but did not explain what that plain and ordinary meaning is. *See id.* at 81-82. Sony argued that these limitations are invalid as indefinite. *Id.* at

[9] Claim 1 also requires that the backcoating layer have no more than 600 projections "per 6400 μm^2" that have a height greater than 75 nm. '899 patent at 20:41-47. It is not disputed that the accused Sony LTO tapes practice this limitation. *See* ID at 85-87.

82. The ID rejects Sony's indefiniteness argument and adopts Fujifilm's explanation that the disputed terms should be given their plain and ordinary meaning in the art. *Id.* at 82-84.

The ID then turns to infringement, as it compares the parties' test results to the claimed ranges for projection heights and densities. *See id.* at 85-88. Both parties tested sample Sony LTO-6 tapes and presented results that they each claimed supported their respective positions on infringement. *Id.* Those test results and the ID's analysis of that evidence will be discussed in more detail in the following section. In the ID, "[t]he next question to resolve is the legal significance of these facts" (the test results) given the projection height and density limitations "per 6400 μm^2." *Id.* at 90. Fujifilm and OUII, the ID notes, argued that a magnetic tape infringes if it has at least one 6400 μm^2 unit area in the entire backcoating layer that practices all of the claim limitations, or, in the alternative, if the average of multiple measurements falls within the claimed range. *See id.* Sony argued that infringement could be found only if every measurement that is taken of a tape falls within the claimed range; in other words, infringement is defeated if even a single measurement falls outside the range. *See id.* at 88, 90.

Although the ID does not conduct a formal *Phillips*-type claim construction, the ID finds it "instructive" that "the patentee defined the invention in the claims by the evaluation of a very tiny area ["per 6400 μm^2]." *Id.* at 88. The ID finds that "the '899 patent claims do not recite a commercial tape with certain physical properties along its entire length," and thus "do[] not require Fujifilm to show backcoating projection counts along the entire length of a commercial tape in order to establish infringement." *Id.* at 88-89. The ID finds instead that "[a]ny magnetic recording medium of 6400 μm^2 having each element of the claims is infringing." *Id.* at 89. "In other words, the presence of projections on a backcoating layer outside the claimed range in some areas does not defeat infringement if there is a 6400 μm^2 area that contains every element

of the claims arranged in the manner required by the claims." *Id.* The ID thus interprets "per 6400 μm^2" to refer to a single 6400 μm^2 area and not to the tape as a whole. *See id.*

b. Analysis and Determination

The Commission determined to review the ID's interpretation and application of the projection height and density limitations "per 6400 μm^2." Comm'n Notice, 84 *Fed. Reg.* at 10533 (Questions B, C). Sony argues on review that "per 6400 μm^2" means the tape must satisfy the projection height and density limitations for each and every 6400 μm^2 area that is measured, although it does not require that every unit area must be measured to prove infringement. Sony's Br. at 5-12. Fujifilm and OUII disagree, arguing that the ID correctly finds that a tape infringes if it has at least one 6400 μm^2 area that practices all of the limitations, regardless of whether the projection height and density limitations in the remainder of the tape fall outside the claimed ranges. Fujifilm's Br. at 7-15; OUII's Br. at 4-6. Where multiple portions of 6400 μm^2 are measured, Fujifilm argues that the projection density measurements should be averaged, either within a single tape or even across multiple tapes, and the average compared to the claimed ranges to determine if there is an infringement. Fujifilm's Br. at 9-11.

The Commission has determined to modify the ID's interpretation of "per 6400 μm^2," particularly where the ID finds that a limitation on the number and height of projections "per 6400 μm^2" is satisfied if only a single, 6400 μm^2 area in the entire tape is found to practice the corresponding limitations. *See* ID at 88-89. The Commission finds that Sony is correct in that the plain meaning of the limitation requiring 800-1500 projections having heights between 50-75 nm "per 6400 μm^2" should be interpreted to "reflect[] a property of the backcoating layer itself, not merely a portion of the backcoating layer." Sony's Br. at 7 (quoting *Storage Tapes I*, Inv. No. 337-TA-1012, Comm'n Op. at 63 (Mar. 8, 2018)). As discussed below, the Commission finds the claim language and specification support this interpretation, and do not support finding

infringement if only a single 6400 μm^2 unit area within the entire backcoating layer practices the claims. At the same time, the '899 patent makes clear through its reliance on averages that perfect consistency is not required, and infringement is not necessarily defeated by some reasonable variation in measurements across the backcoating layer.

Fujifilm argued, and the Commission agrees, that the projection height and density limitations "per 6400 μm^2" should be given their "plain and ordinary meaning." JX-0015 at 6-7 (Second Amended Proposed Constructions of the Private Parties and the Staff) (discussed in ID at 81, 84). Fujifilm has not argued that "per [unit area]" has any particular technical meaning in the art, nor has it argued that the patentees defined the term in any special way in the '899 patent or disavowed any claim scope. *See Thorner v. Sony Compt. Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (the only two reasons to depart from a term's plain and ordinary meaning is when the patentees acted as their own lexicographer and set out a special definition or they clearly and unequivocally disavowed claim scope). Fujifilm also has not provided any dictionary definitions to show what the plain and ordinary meaning of "per" is.

Claim 1, moreover, states that the projection height and density ranges are limitations on the "backcoating layer," which, with the magnetic layer and support, form the claimed "magnetic recording medium." '899 patent at 20:41-47. No party has argued that the applicants disavowed claim scope or defined "magnetic recording medium" or "backcoating layer" in any unique way in the patent or prosecution history. *See Thorner*, 669 F.3d at 1365. Those terms should also be interpreted according to their plain and ordinary meaning in the context of the patent. *See id.*

The '899 patent consistently describes the invention, including the claimed "magnetic recording medium" and "backcoating layer," in terms of the tape as a whole, and not some minute 6400 μm^2 portion of it. For example, the '899 patent describes problems arising from

imprinting, friction, deterioration, and error rates "when a [prior art] magnetic recording tape with a backcoating layer is stored or handled for processing in form of a tape pack (roll) wound on a hub . . . . " '899 patent at 2:3-14. "An object of the present invention," then, "is to provide a magnetic recording medium having an improved backcoating layer, with which the medium has a reduced error rate, can be rewound properly into a good tape pack, and exhibits excellent sliding characteristics." *Id.* at 2:18-22; *see also id.* at 1:5-9 ("This invention is . . . a magnetic recording medium having a reduced error rate, a reduced frictional coefficient, and good tape pack quality by virtue of its improved backcoating layer."). Similarly, Fujifilm's expert, Dr. Hadjipanayis, testified that a "magnetic recording medium" refers to the tape, because "*[t]hat's where you store the information*." Hr'g Tr. (Hadjipanayis) at 410:10-17, 474:14-475:2 (emphasis added); *see also id.* at 475:19-476:14 (a person skilled in the art would understand that a magnetic recording tape has a much greater area than 6400 μm^2). While a sample 6400 μm^2 area may exhibit properties representative of the magnetic or backcoating layers as whole, that unit area alone is too small to be recorded or to exhibit lower error rates, good tape pack, sliding characteristics, or other properties of the backcoating layer discussed in the specification.

The specification similarly describes the claimed projection height and density limitations as applying to the backcoating layer as a whole, and not just to a single unit area without that layer. *See, e.g.*, '899 patent at 2:61-3:2 ("The backcoating layer has, on its outer surface, 800 to 1500 . . . projections having a height of 50 nm or more and less than 75 nm per 6400 μm^2 and 600 or less . . . projections having a height of 75 nm or greater per 6400 μm^2."). The '899 patent explains that these projection height and density ranges are important because of the positive benefits they bring to the magnetic recording medium *as a whole*. For example:

- "By controlling the densities of projections of specific height ranges on the backcoating layer, *a magnetic recording medium having a reduced frictional*

coefficient, good tape pack quality, and a reduced error rate is obtained." '899 patent at 2:53-56 (emphasis added).

- "As long as the density of projections having a height of 50 nm or more and less than 75 nm falls within the recited range, the backcoating layer has a reduced frictional coefficient *so that the magnetic tape exhibits stable running properties and is rewound into a neat tape pack*." *Id.* at 3:3-7 (emphasis added).

- "As long as the density of projections of 75 nm or higher is limited to 600/6400 μm^2 at the most, *the adverse influences of the roughness transfer to the magnetic layer are suppressed to minimize the error rate*. It is desirable in principle that the number of such high projections be as small as possible." *Id.* at 3:23-28 (emphasis added).

- "The results in Table 1 [discussed later] reveal that *the magnetic recording tapes having a backcoating layer according to the present invention have a smaller frictional coefficient and a lower error rate and maintain a good tape pack*." *Id.* at 20:29-32 (emphasis added).

The '899 further explains that tapes having backcoating layers with too many or too few projections of the desired heights do not perform as well. Hr'g Tr. (Talke) at 931:2-932:19. For example, tapes having projection heights or densities that fall outside the claimed ranges may have a coefficient of friction that causes sticking tapes, uneven winding, unstable running, or high error rates. *Id.*; '899 patent at 3:8-22 ("If the density of projections of 50 nm or higher and lower than 75 nm is smaller than 800/6400 μm^2, the backcoating layer will have an increased frictional coefficient," and consequently "exhibit[] unstable running" or deformation of the tape pack when it is wound), 20:33-35 ("comparative tapes [that do not have a backcoating layer according to the present invention] are inferior in terms of at least one of frictional coefficient, error rate, and tape pack condition.").

The '899 patent also explains that "projection densities on the backcoating layer can be so controlled" by adjusting the sizes of inorganic particles; selecting appropriate binders for dispersing the inorganic particles and lubricant; selecting appropriate kneading or dispersing conditions or backcoating layer thickness; controlling coating and drying conditions; or other measures. *See id.* at 3:29-39, 5:18-22. The backcoating and other layers are also extruded and

smoothed as part of a continuous process. *See id.* at 15:41-60, 16:1-9. All of these parameters and conditions affect the backcoating layer as a whole. *See id.* at 17:51-19:42 (describing samples made according to the invention). A person skilled in the art would understand that these methods produce a high degree of consistency or uniformity across the entire backcoating layer, subject to some variation, such that averaging is an appropriate method of analysis. *See* Hr'g Tr. (Hadjipanayis) at 478:8-479:18. This concept of consistency is also the very basis for Fujifilm's argument regarding representative products, as discussed earlier.

For these reasons, the Commission finds that the projection height and density limitations apply to the backcoating layer of the magnetic recording medium as a whole, and are not satisfied merely by finding a single, minute 6400 μm^2 portion of that layer that practices the claim limitations. This interpretation does not require testing the entire backcoating layer, nor does it require perfect uniformity or conformity across that entire layer. As the '899 patent explains, three sample 6400 μm^2 areas were tested from a single tape, and the test results averaged to determine the properties of the backcoating layer overall. '899 patent at 19:43-54. Taking multiple samples and then averaging the results is a reasonable approach to determining the property of the tape as a whole. Hr'g Tr. (Hadjipanayis) at 476:15-479:18; Hr'g Tr. (Talke) at 986:2-987:15. Individual 6400 μm^2 areas are relevant to the extent they are representative of the backcoating layer as whole, *e.g.*, through averaging, and not merely because a single unit area happens to practice all of the claim limitations.[10] *See id.*

The Commission's construction of the projection height and density limitations "per 6400 μm^2" is also consistent with its earlier opinion in another case involving Sony and Fujifilm. *See*

[10] Although the '899 patent also does not say how long the sample tapes were, they were apparently long enough to evaluate frictional coefficients, error rates, and tape pack conditions. *See* '899 patent at 19:55-20:8. This indicates that the sample tapes were larger than 6400 μm^2.

Storage Tapes I, Inv. No. 337-TA-1012, Comm'n Op. at 63, 68. In *Storage Tapes I*, the subject patent claimed "[a] magnetic recording medium comparing a magnetic layer . . . a backcoat layer . . . wherein a power spectrum density at a pitch of 10 micrometers ranges from 800 to 10,000 nm^3 on the magnetic layer surface, *a power spectrum density at a pitch of 10 micrometers ranges from 20,000 to 80,000 nm^3 on the backcoat layer surface* . . . ." *Id.* at 60, 62-63 (emphasis added). "Power spectrum density" ("PSD") is a measure of the waviness of a tape surface, *i.e.*, it "is reflective of a physical characteristic of a surface," the Commission explained. *Id.* at 63.

The Commission determined that "the article '*a*' in '***a*** power spectrum density' refers to ***a*** tape characteristic – ***not a*** single particular measurement." *Id.* at 63 (emphasis in original). "The plain language of the claim," the Commission found, "therefore reflects a property of the backcoat layer itself, not merely a portion of the backcoat layer." *Id.* The Commission also found that the patent specification in *Storage Tapes I* "emphasizes the importance of controlling the PSD of the magnetic and backcoat layers." *Id.* at 64. In a similar way, the Commission finds that the specification of the '899 patent emphasizes the importance of controlling the height and density of projections across the entire backcoating layer in order to improve the performance of the magnetic recording medium as a whole.[11] Thus, just as the Commission interpreted "the magnetic and backcoat layer limitations of the asserted claims of the [asserted] patent to require that the entire surface of each layer must have PSD measurements within the claimed range" (*id.* at 68), the Commission finds that the projection height and density limitations "per 6400 μm^2" recited in the '899 patent claims apply to the entire backcoating layer, and not just a single unit area within that layer, even though the two cases involve different claim language.

[11] The prosecution history of the '899 patent is not an issue here as it was in *Storage Tapes I*.

The Commission's interpretation of "per 6400 μm^2" also distinguishes this case from *SunTiger, Inc. v. Scientific Research Funding Group*, 189 F.3d 1327, 1337 (Fed. Cir. 1999), cited in the ID at 88-89. The *SunTiger* opinion states that "[i]f a claim reads merely on a part of an accused device, that is enough for infringement." *Id.* at 1336. In this case, in contrast, the '899 patent describes the projection height and density limitations "per 6400 μm^2" as applying to the entire backcoating layer, and not just a single unit area. Thus, individual non-infringing 6400 μm^2 unit areas within that backcoating layer are not "additional elements" that are added onto an infringing 6400 μm^2 area, as the ID and Fujifilm argue. Rather, each and every unit area is part of the same backcoating layer, which means that measurements taken of individual unit areas in a single tape and the averages of those measurements are relevant to determining whether the backcoating layer as whole satisfies the projection height and density limitations of the '899 patent. '899 patent at 19:43-53. *SunTiger* is inapposite to interpreting the '899 patent.

In sum, the Commission finds the plain and ordinary meaning of the projection height and density limitations "per 6400 μm^2" refer to physical properties of the backcoating layer as a whole. These limitations are not satisfied merely by showing that a single 6400 μm^2 unit area within the entire backcoating layer practices those limitations. Taking and averaging test results from multiple sample areas on a single tape is an acceptable means of showing whether the backcoating layer satisfies those limitations, as discussed in the '899 patent itself (at 19:43-53).

3. Infringement of projection height, density limitations "per 6400 μm^2"

a. The ID

Fujifilm and Sony both tested sample Sony LTO-6 tapes. The ID finds that neither party seriously contested the reliability of the other party's measurements or the representativeness of its samples. ID at 84-85, 89-90. The issue, as noted earlier, centers on how to interpret their test results for the purpose of analyzing infringement of the '899 patent. *See id.* at 88-89, 90-91.

The ID states that Fujifilm measured projection heights and densities in nine different locations on a single Sony LTO-6 tape – three from the beginning of the tape ("BOT"), three from the middle ("MOT"), and three from the end ("EOT"). ID at 85. Fujifilm reported that every one of its measurements fell with the claimed ranges, as shown in the table below:

SONY LTO-6 Sample location	Number of backcoat projections of 50 nm or more and less than 75 nm in height per 6400 μm^2	Number of backcoat projections of 75 nm or more in height per 6400 μm^2
BOT 1	977	136
BOT 2	915	152
BOT 3	935	132
MOT 1	1071	139
MOT 2	817	155
MOT 3	888	138
EOT 1	1426	165
EOT 2	1135	146
EOT 3	1262	152

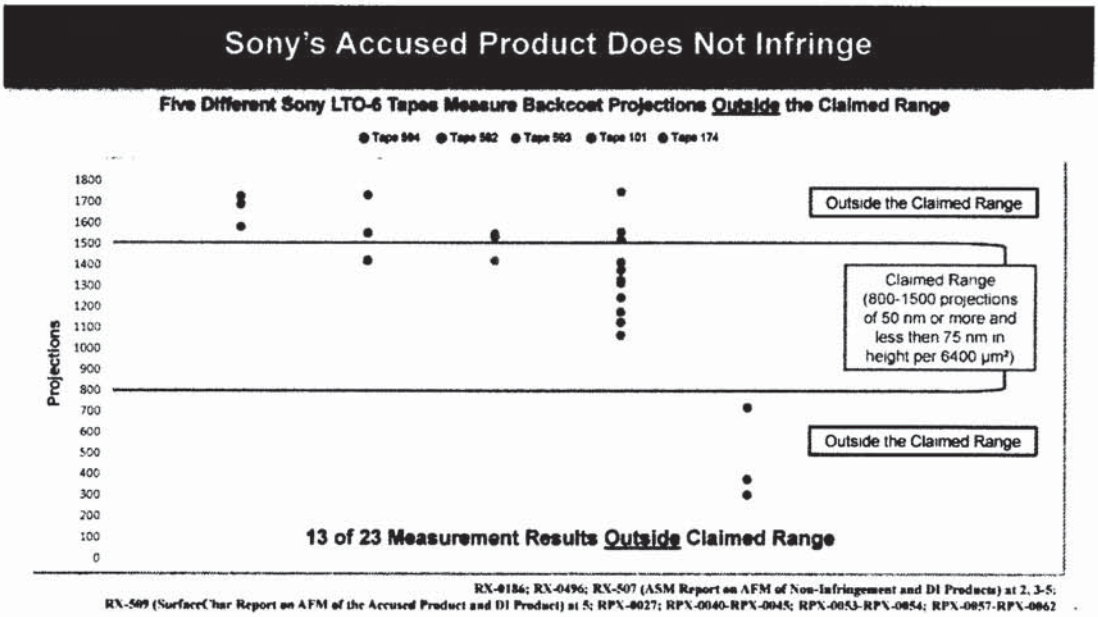
From ID at 85 (discussing CX-0364 at 3).

Sony's expert Dr. Talke measured projection heights and densities at multiple locations on five different Sony LTO-6 tapes – specifically, at eleven locations on sample Tape 101, and three locations on each of four other sample tapes (Tapes 174, 592, 593, and 594). *Id.* at 85-87. Sony's test results, as recorded in the ID, are presented in the table below, with asterisks marking each data point that the ID claims falls outside the claimed range:

SONY LTO-6	Dr. Talke's Measurement of 50-75 nm Projections	Dr. Talke's Measurement of Projections ≥ 75 nm
Tape 101 BOT 1	1328	62
Tape 101 BOT 2	1315	47
Tape 101 BOT 3	1522*	70
Tape 101 BOT 4	1748*	82
Tape 101 BOT 5	1376	58
Tape 101 MOT 1	1414	40
Tape 101 MOT 2	1127	24
Tape 101 MOT 3	1558*	41
Tape 101 EOT 1	1175	31
Tape 101 EOT 2	1244	22
Tape 101 EOT 3	1095	21
Tape 174 Sample A	720*	32
Tape 174 Sample B	304*	6
Tape 174 Sample C	376*	4
Tape 592 BOT 1	1421	69
Tape 592 BOT 2	1553*	71
Tape 592 BOT 3	1732*	63
Tape 593 BOT 1	1550*	71
Tape 593 BOT 2	1420	60
Tape 593 BOT 3	1533*	82*
Tape 594 BOT 1	1689*	74
Tape 594 BOT 2	1728*	93*
Tape 594 BOT 3	1582*	57

ID at 86-87 (citing RX-0507 at 2-5; RX-0509 at 11); *see also* Hr'g Tr. (Talke) at 933:4-936:11 (discussing Sony's testing); Hr'g Tr. (Hadjipanayis) at 428:25-429:23 (same).

Sony also summarized its test results in the chart below:



The ID finds that all of the projection height and density measurements that Sony took from two of its sample LTO-6 tapes (Tapes 174 and 594) fell outside the range requiring 800-1500 projections between 50-75 nm in height "per 6400 μm^2," as shown table above. ID at 86-87, 91. The ID finds that Sony's measurements from its other three tapes were mixed, as they included values that fell both inside and outside the claimed ranges. *Id.*

Sony, the ID explains, also presented a 2013 Fujifilm document that recorded the results of Fujifilm's internal testing of a Sony LTO-6 tape. ID at 87-88 (citing RX-0591 at 19). Sony reported that when Fujifilm's measurements are converted into units of 6400 μm^2, they fell outside the claimed ranges. *Id.* (discussing Hr'g Tr. (Talke) at 936:12-937:9; RDX-0018 at 13).

Fujifilm, the ID explains, argued that Sony infringes the '899 patent because experts on both sides found at least one projection count on multiple sample tapes that fell inside the claimed ranges, regardless of any other measurements that fell outside those ranges. ID at 88. Sony, on the other hand, argued that there is no infringement of the '899 patent because its expert found projection counts outside the claimed ranges on each tape he tested. *Id.* The ID

rejects both "winner-take-all approach[es]." *Id.* at 91. In particular, the ID rejects Sony's non-infringement argument because it did not consider the LTO-6 sample tested by Fujifilm, in which measurements from all nine locations fell within the claimed ranges. *Id.* at 85, 91. On the other hand, the ID also rejects Fujifilm's infringement position because it did not consider Sony Tapes 174 and 594, which had no measurements that fell within the claimed. *Id.* at 86-87, 91.

Instead, the ID finds that the Sony LTO-6 tapes represent "a mixture of infringing with non-infringing products," which is typically addressed at the remedy stage. *Id.* at 91. The ID finds that the sample LTO-6 tape tested by Fujifilm infringes because all of its measurements fall within the claimed range. *Id.* at 89. The ID also finds that Sony's Tapes 101, 592, and 593 infringe because they each have at least one measurement that falls within the claimed range, which is all that is needed under the ID's interpretation of "per 6400 μm^2." *Id.* at 89-90. The fact that those Sony LTO-6 tapes also had measurements that fell outside the claimed ranges did not defeat infringement under the ID's interpretation. *See id.* The ID concludes that Sony infringes the '899 patent, while the RD recommends that the limited exclusion order include a certification provision to permit importation of non-infringing tapes. *Id.* at 91, 171, 175-176.

b. Analysis and Determination

When the Commission determined to review the ID's application of the projection height and density limitations, it also determined to review the ID's finding of infringement of the '899 patent. Comm'n Notice, 84 *Fed. Reg.* at 10533 (Question C). Having reviewed the parties' submissions, the evidence of record, and the ID, the Commission has determined to affirm the ID's finding that Sony infringes the '899 patent, albeit on somewhat different grounds.

As stated earlier, the only dispute is whether the backcoating layer in the accused Sony LTO-6 tapes have 800-1500 projections having heights between 50-75 nm per 6400 μm^2, as

required in claim 1.[12] ID at 84-85. The ID properly finds that there one Sony LTO-6 tape, the one tested by Fujifilm, in which all of the measurements of projection height and density fell within the claimed range. *Id.* at 85, 89-90. The ID also properly finds there are at least two Sony LTO-6 tapes (Tapes 174 and 594) that have no measurements falling within the claimed range. *Id.* at 91. Thus, under the Commission's interpretation of the projection height and density limitations, the ID correctly finds that at least the Sony LTO-6 tape tested by Fujifilm infringes the '899 patent and the two tapes tested by Sony (Tapes 174 and 594) do not infringe. *Id.* at 91. Given that neither party has seriously contested the reliability of the other party's test results or the representativeness of the sample tapes, the ID correctly rejects a "winner-take-all approach" because Sony's LTO-6 product line includes both infringing and non-infringing tapes. *Id.*

Turning to those tapes that exhibit measurements both inside and outside the claimed range (Sony Tapes 101, 592, and 593), the Commission finds that the ID erred in holding that a tape infringes the '899 patent if it has only a single 6400 μm^2 area that practices the claimed range, regardless of other measurements that may fall outside the claimed ranges. As explained earlier, the Commission has found that the limitations expressing projection height and density limitations "per 6400 μm^2 recite a physical property of the backcoating layer as a whole, and are not satisfied merely by finding a single practicing 6400μm^2 unit area in that layer. At the same time, the Commission does not interpret the claimed ranges to require that every unit area of the tape (especially of a commercial tape, which may be 800 meters long) must be measured, or that every measurement must fall within the claimed ranges, to find infringement, as Sony argued.

[12] The Commission uses phrases like "between 50-75 nm" as shorthand, recognizing that claim 1 technically requires 800-1500 projections "of *50 nm or more* and *less than 75 nm* in height . . . ." '899 patent at 20:44-47 (emphasis added).

To determine when measurements of unit areas are representative of the backcoating layer as a whole, the '899 patent teaches that at least three scans are taken from each sample, and the results are then averaged, as shown in Table I below. '899 patent at 19:43-54; *see also* Hr'g Tr. (Hadjipanayis) at 403:2-404:18, 473:14-474:4 (testifying that the '899 patent teaches taking multiple scans and averaging the results).

TABLE 1

		Average Particle Size of Fine Carbon Black (nm)	Coarse Carbon Black: Average Particle Size (nm)	Coarse Carbon Black: Amount (part)	Number of Projections/6400 μm^2: ≧50 nm, <75 nm	Number of Projections/6400 μm^2: ≧75 nm	Coefficient of Friction	Error Rate ($\times 10^{-7}$)	Tape Pack Condition
	Coating Composition A								
Compara. Example 1	1	13	270	4	630	180	0.29	4.2	NP (pack compression)
Example 1	2	25	270	4	920	260	0.23	5.3	P
Example 2	3	34	101	4	1244	400	0.22	7.5	P
Example 3	4	43	101	4	1350	465	0.22	7.7	P
Compara. Example 2	5	60	101	4	1700	800	0.21	95	NP (step winding)
Compara. Example 3	6	43	270	10	1450	700	0.22	82	P

'899 patent at cols. 19-20 (averages of projection density measurements highlighted in yellow).

As shown in Table 1, the sample tapes were also wound and graded as a whole ("P" for pass, "NP" for no pass) based on whether the tape as a whole exhibited pack compression or step winding. *See id.* at 20:1-8. The '899 patent concluded the following:

> The results in Table 1 reveal that *the magnetic recording tapes having a backcoating layer according to the present invention have a smaller frictional coefficient and a lower error rate and maintain a good tape pack*. To the contrary, comparative tapes are inferior in terms of at least one of frictional coefficient, error rate, and tape pack condition.

'899 patent at 20:29-35.

Averaging test results as described in the '899 patent is also a common practice in the art, where surface roughness is typically measured by taking three to four measurements from a sample. Hr'g Tr. (Hadjipanayis) at 414:19-415:3. Experts from both sides agreed that averaging the test results is a reasonable and acceptable approach. *Id.* at 404:7-18 ('899 patent describes averaging results of three scans because an average "gives you more reliable data" and "you get

a better representation of how the tape behaves overall. More data you have, the better it is. So three scans, it was pretty good."); Hr'g Tr. (Talke) at 986:2-987:15 ("it is reasonable to take averages" in engineering). Sony's expert, Dr. Talke, also admitted that it is reasonable to take three backcoat-projection tests and average the results because the '899 patent discloses that very method, although in his opinion claim 1 does not apply to average projection densities because it does not use that term. Hr'g Tr. (Talke) at 986:2-15; *see also id.* at 945:4-24.

In this case, both sides took at least three measurements of projection density (sometimes as many as nine or eleven) from each sample tape. ID at 85-87. The Commission has averaged the test results from each sample, as disclosed in the ID, and presented them in the table below. The Commission finds that only one of the tapes (Sony Tape 101) having measurements falling both inside and outside the claimed range has an average projection density value that falls within the range of 800-1500 projections with a height between 50-75 nm per 6400 μm^2. The remaining Sony tapes exhibiting mixed test results (Tapes 592, 593) do not infringe because the averages of their test results fall outside the claimed range. *See id.* at 86-87. These averages further confirm the ID's finding that the Sony LTO-6 product line includes both infringing and non-infringing tapes, albeit for somewhat different reasons. *See* ID at 91.

Tape	**Number of measurements within the claimed range**	**Average of measurements within claimed range?**	**Practices limitation?**
Fujifilm sample	9 of 9	Yes (1,047)	Yes
Sony Tape 101	8 of 11	Yes (1,355)	Yes
Sony Tape 174	0 of 3	No (467)	No
Sony Tape 592	1 of 3	No (1,569)	No
Sony Tape 593	1 of 3	No (1,501)	No
Sony Tape 594	0 of 3	No (1,666)	No

At the same time, the Commission rejects Fujifilm's suggestion to average test results across tapes for the purpose of finding infringement. The '899 patent does not describe averaging across tapes; it only describes averaging the test results for individual tapes. *See* '899 patent at 19:43-54. Averaging across multiple tapes would also obscure the fact that there are some LTO-6 tapes that do not infringe, as discussed above. Averaging across tapes may also make it more difficult for a respondent to show that its new or redesigned tape products do not infringe, as measurements from its old (potentially infringing) tapes would be commingled with measurements from its new (potentially non-infringing) products.

In sum, the Commission determines that the ID properly finds that Sony infringes claim 1 of the '899 patent. Based on the teachings of the '899 patent, the ID, the parties' submissions, and the evidence of record, the Commission determines that infringement is found where: (1) at least three measurements of projection heights and densities are taken from the beginning third, middle third, and ending third of the backcoating layer; (2) the average of all such measurements taken from a single sample tape falls with the claimed range; and (3) the accused tape product satisfies all of the other claim limitations. Under this test, the Sony LTO-6 tape tested by Fujifilm and the Sony Tape 101 have been shown to infringe claim 1. The remaining Sony Tapes 592, 593, 594 do not infringe because in each case the average of their projection density measurements do not fall inside the claimed range. The Commission thus affirms that the Sony LTO-6 product line contains both infringing and non-infringing tapes, which will be taken into consideration in the remedy portion of this opinion. *See* ID at 91.

The Commission notes that Sony has stipulated that its accused products satisfy all of the additional limitations of dependent asserted claims 7, 11, and 12. ID at 92. The Commission finds that the Sony LTO-6 tapes that infringe claim 1 also infringe claims 7, 11, and 12.

4. Infringement of Claim 2

a. The ID

Claim 2 depends on claim 1, and adds the following limitations regarding the ferromagnetic metal powder used in the magnetic layer of the magnetic recording medium:

> 2. The magnetic recording medium according to claim 1, wherein the ferromagnetic powder is ferromagnetic metal powder having an average length of 30 to 150 nm and a coefficient of length variation of 25% or smaller.

'899 patent at 20:48-51.

Having found that Sony infringes claim 1, *supra*, the ID finds that Sony infringes dependent claim 2 as well. The ID allows Fujifilm to prove infringement of claim 2 by using measurements it took of projection heights and densities in this investigation (discussed above) to satisfy the limitations of claim 1, and then combining those results with measurements of ferromagnetic metal particles that Sony's expert, Dr. Bain, took of a different Sony LTO tape in a different investigation to satisfy the additional limitations of dependent claim 2. *See* ID at 91-92. According to the ID, Dr. Bain testified in that earlier investigation, *Certain Magnetic Tape Cartridges and Components Thereof (I)*, Inv. No. 337-TA-1036 ("1036 Investigation"), that the sample Sony LTO-6 products he tested had an average magnetic particle length of 69 nm and a coefficient of length variation of 15.95%. *Id.* (citing CX-0303, Q/A 2445). The ID finds that these values fall within the ranges recited in dependent claim 2, above.

Sony objected to Fujifilm's attempt to prove infringement by combining different kinds of measurements taken from different tape products during different investigations. ID at 91-92. Sony argues that proving infringement of claim 2 instead requires finding all of the limitations of both claims 1 and 2 on a single tape. *Id.* The ID rejected this argument, finding that combining Sony's test results from the earlier investigation with Fujifilm's projection height and density

measurements in the present investigation is appropriate and provides "strong circumstantial evidence" that the Sony LTO-6 tapes infringe claim 2 of the '899 patent. *Id.* at 92.

b. Analysis and Determination

The Commission determined to review the ID's finding that Sony infringes claim 2 of the '899 patent. Comm'n Notice, 84 *Fed. Reg.* at 10533 (Question D).

Sony argues on review that Fujifilm failed to prove that the Sony LTO-6 tapes it tested in the earlier 1036 Investigation are [[ ]]. Sony's Br. at 16. This is particularly so, Sony argues, when Fujifilm's own tests of a Sony LTO-6 tape in the present investigation found the coefficient of length variation to be 26.82%, which is substantially higher than the 15.94% recorded by Dr. Bain in the 1036 Investigation. *Id.*

Fujifilm and OUII, on the other hand, argue that Sony should be held to its earlier representation that the LTO-6 tapes it tested during the 1036 Investigation were representative of its LTO-6 tape products. Fujifilm's Br. at 18-19; OUII's Br. at 7. Fujifilm further argues that [[

]] that it has used since the 1036 Investigation, which concluded only six months before the evidentiary hearing in the present investigation. *Id.*

The Commission has determined upon review of the record to reverse the ID and find that Fujifilm has not proven by a preponderance of evidence that the accused Sony LTO-6 tapes infringe claim 2. Claim 2, which depends on claim 1, is directed to "*[a]* magnetic recording medium comprising *a* backcoating layer, a support, and *a* magnetic layer containing ferromagnetic powder . . . ," where "*the* backcoating layer" and "*the* ferromagnetic powder" must satisfy certain specific limitations. '899 patent at 20:41-51 (emphasis added). Infringement requires that every claim limitation be found in the accused product. *Duncan Parking*, 914 F.3d at 1360. In this case, Fujifilm is relying on different measurements taken

from two different tapes to prove infringement. But interpreting "a" to mean "one or more" does not change the fact that claims 1 and 2 must be practiced by at least one, single tape, which must include at least one backcoating layer and at least one magnetic layer with ferromagnetic powder that practices all of the recited limitations. *See* Sony's Reply at 16-17. Fujifilm, however, has not identified a single LTO-6 tape that practices all of the limitations recited in claims 1 and 2.

Even if Fujifilm were correct that test results from different tapes can be combined and that [[ ]], the evidence shows that the coefficient of length variation recorded by Fujifilm's expert (26.82%) is substantially greater than that recorded by Sony's expert (15.94%) in the 1036 Investigation. In fact, Fujifilm's coefficient is 68% higher than Sony's recorded coefficient, and is so high it even exceeds the upper limit of 25% recited in claim 2.[13] *Compare* CX-0365.0046 (measurements taken during this investigation) *with* Hr'g Tr. (Hadjipanayis) at 418:22-26 (discussing Dr. Bain's results). This substantial variation undermines Fujifilm's argument that using the [[ ]], at least with respect to the specific ferromagnetic powder limitations recited in claim 2. No explanation has been provided as to why these coefficients vary so widely. This variation in coefficient values also undercuts the ID's assumption that the Sony tape tested in the earlier 1036 Investigation is necessarily "representative" of the tapes it is making today, let alone Sony's entire LTO-6 product line. The law "will not permit inferences to be drawn upon inferences." *See Rickard v. Sec'y of Health & Human Servs.*, 2011 WL 1979601, at *11 (Fed. Cl. Apr. 11, 2011) (citing *United States v. Ross*, 92 U.S. 281, 284 (1875) ("Whenever circumstantial evidence

[13] The doctrine of equivalents is not at issue, as Fujifilm did not raise it in its post-hearing brief, its response to Sony's petition for review, or in either of its briefs to the Commission on review.

is relied upon to prove a fact, the circumstances must be proved, and not themselves presumed."). Fujifilm's "circumstantial evidence" is "too speculative" to support a finding of infringement. *See Lucent Techns., Inc. v. Gateway, Inc.*, 543 F.3d 710, 723-24 (Fed. Cir. 2008).

For the same reasons given in the preceding section, the Commission also remains skeptical of combining test results from different tapes, as it may obscure specific instances of non-infringement. This concern becomes particularly problematic where, as here, [[

]]. Fujifilm also offers no explanation as to why it is relying on Sony's tests from the previous 1036 Investigation when Fujifilm has already tested sample Sony LTO tapes in this investigation.

Accordingly, the Commission has determined to reverse the ID and find that Fujifilm has not shown by a preponderance of evidence that Sony infringes claim 2 of the '899 patent.

5. Non-obviousness of the '899 patent claims

The Commission also determined to review the ID's finding that the asserted claims of the '899 patent are not invalid as obvious in view of Sueoka (Japanese Patent Application No. 2001-273623), either in combination with knowledge in the art regarding Gaussian distributions or with the Aonuma prior art reference (Japanese Patent Application No. 2003-36520). Comm'n Notice, 84 *Fed. Reg.* at 10533 (Questions E, F). Upon review of the parties' submissions, the ID, and the evidence, the Commission finds no meaningful error in the ID's analysis, adopts its reasoning as if set forth herein, and affirms its finding of non-obviousness. *See* ID at 98-110.

To the ID's findings, the Commission adds that Dr. Talke based his obviousness analysis on his assumption that the (undisclosed) data in Sueoka followed a Gaussian distribution. *See* Hr'g Tr. (Talke) at 897:8-899:22; 955:19-956:21 (discussing RX-165, RDX-005.0024). Dr.

Talke admitted, however, that none of the prior art he cited, including Sueoka, says anything about a Gaussian distribution, nor did he provide any basis for assuming that the data in Sueoka followed a Gaussian distribution. *Id.* at 952:7-953:6, 953:25-954:16. In fact, Dr. Talke stated that the projections in Sueoka, like other surface roughness data, may be distributed in a number of different ways, such as a linear, exponential, or uniform distribution. *Id.* at 953:2-6; *see also* Hr'g Tr. (Hadjipanayis) at 1336:4-1337:6. He also acknowledged that persons skilled in the art during the relevant time period (circa 2002-2003) would have wanted to create a bimodal distribution of roughness on the backcoating layer, which would not be approximated by a Gaussian distribution. *See* Hr'g Tr. (Talke) at 953:14-24.

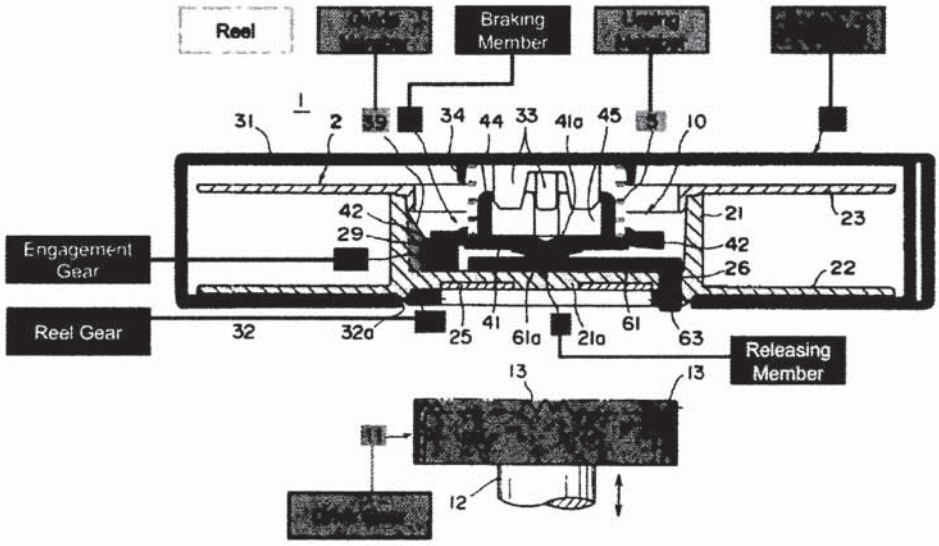
Dr. Talke also admitted that Sueoka does not disclose certain parameters, such as the mean height, standard deviation of height, or total number of projections, that provide the basis for the particular curve he drew. *See id.* at 956:22-958:3. Dr. Talke was relying on only a few data points from Sueoka, so it is not clear how he derived those values, unless he fit his blue Gaussian curve to the data disclosed in the '899 patent, which is impermissible hindsight. *See* Hr'g Tr. (Hadjipanayis) at 1336:4-1338:23. With these additions, the Commission adopts the ID's findings that the '899 patent claims are not obvious in view of Sueoka, whether in combination with knowledge in the art or Aonuma. *See* ID at 98-110.

C. Review Of The '905 Patent

1. Overview of the '905 Patent: "Magnetic Tape Cartridge"

While the '256 and '899 patents are directed to the magnetic recording medium, the '905 patent is directed to a cartridge that holds the tape. '905 patent at Abstract, 1:5-11. In pertinent part, the claimed cartridge includes a braking member with a "braking gear" that can be moved to engage an "engagement gear" on the tape reel. *Id.* at 5:60-6:5, 6:26-40. Claim 3 of the '905 patent, presently at issue, requires that the diameter of the engagement gear be larger than that of

the braking gear. '905 patent at 10:26-27; Hr'g Tr. (Messner) at 1213:9-19. Figure 1 of the '905 patent, which has been annotated and color-coded by Fujifilm[14], identifies the braking member (4), braking gear (42), engagement gear (27), and other components of the tape cartridge:



Fujifilm accuses Sony of infringing claims 1-3 of the '905 patent. ID at 112. The Commission did not review the ID's findings that Sony infringes claim 3 (if valid) but does not infringe claims 1 or 2. Comm'n Notice, 84 *Fed. Reg.* at 10533; *see also* ID at 115-16, 122, 123, 125-127, 30, 170. The only outstanding issue is whether claim 3 is invalid as anticipated or obvious. Claim 3 is recited below, with the claim term at issue identified by underlined italics:

> 3. A magnetic tape cartridge comprising a magnetic tape wound around a single reel, a cartridge casing in which the reel is housed for rotation and a reel stopper means which locks the reel not to rotate when the magnetic tape cartridge is not being used and releases the reel to permit rotation thereof when the magnetic tape cartridge is to be used, wherein the improvement comprises that
>
> > the reel stopper means comprises a braking member which is movable between a locking position where it is in contact with the reel to restrict rotation of the reel and a releasing position where it is away from the reel to permit rotation of the same, an urging member which urges the braking

[14] Complainants Fujifilm Corporation and Fujifilm Recording Media U.S.A., Inc.'s Petition for Review of Final Initial Determination ("Fujifilm's Pet.") at 3 (Nov. 9, 2018).

> member toward the locking position, and a releasing member which is rotated integrally with the reel and moves the braking member toward the releasing position in response to a reel chucking action of the reel drive means of a tape drive, and the braking member is provided with a braking gear which is adapted to be engaged, to restrict rotation of the reel, with an engagement gear on an engagement projection formed on the reel, *the outer diameter of the engagement gear being larger than that of the braking gear*.

'905 patent at 10:5-27 (emphasis added).

2. Review of Anticipation By an On-Sale Bar

a. The ID

The ID finds that claim 3 of the '905 patent is invalid as anticipated by Fujifilm's sales of prototype LTO-1 cartridges to IBM and Seagate more than a year before the priority date ("the critical date") of the '905 patent (*i.e.*, an "on-sale bar").[15] ID at 145-46. The ID explains that an on-sale bar requires clear and convincing evidence that, before the '905 patent's critical date, the claimed invention must have been: (1) the subject of a commercial sale; and (2) ready for patenting. ID at 145 (citing *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 67 (1998)).

The ID finds that Fujifilm's sales of prototype cartridges to IBM and Seagate were "commercial sales," even though they were the subject of confidentiality agreements that Fujifilm had signed with IBM and Seagate. ID at 146-47. The ID finds the confidentiality agreements are not determinative and distinguishable from previous cases for a number of reasons, including: (i) the '905 patent is directed to a physical product, not a method of manufacture; (ii) the sales involved transfer of title to the products from Fujifilm to IBM and Seagate for monetary consideration; (iii) neither IBM nor Seagate is manufacturing the cartridges for Fujifilm; and (iv) the products were not being stockpiled. *Id.*

[15] Because the '905 patent issued from an application filed before March 16, 2013, the pre-AIA version of § 102(b) governs. *See* footnote 4, *supra.*

The ID also finds that Sony produced sufficient evidence that Fujifilm's prototype cartridges satisfied all of the limitations of claim 3. *Id.* at 147-48. Sony argued that Fujifilm manufactured the cartridges according to draft LTO specifications in existence at that time, and then relied on its expert to identify where the elements of claim 3 could be found in those draft specifications. *Id.* at 147. The only limitation of claim 3 not disclosed in the LTO specification, the ID finds, was whether the diameter of the engagement gear was relatively larger than that of the braking gear. *Id.* For this element, Sony relied on a manufacturing drawing produced by Fujifilm and testimony by a Fujifilm engineer about the diameters of gears in products Fujifilm sent to its customers in 1999. *Id.* at 147-48. The ID relies on the same evidence to find that the invention of claim 3 had been reduced to practice, and thus was ready for patenting, because the invention was embodied in the prototypes Fujifilm sold to IBM and Seagate. *Id.* at 147.

The ID notes that Fujifilm did not present any contrary evidence of its own, but only challenged the sufficiency and reliability of the evidence cited by Sony. *Id.* at 147, 148. While remaining mindful that anticipation requires clear and convincing evidence, the ID finds no rule that requires that that burden must be met by direct evidence. *Id.* at 149. The ID finds Sony's indirect evidence in the form of the draft LTO specifications, evidence that Fujifilm would have manufactured its 1999 prototype cartridges according to those specifications, and testimony from a Fujifilm witness involved in the transactions to be sufficient, particularly since Fujifilm did not produce any counter-evidence of its own. *Id.* The ID concludes that the prototype cartridges that Fujifilm sold to IBM and Seagate practiced every limitation of claim 3, and that Sony proved by clear and convincing evidence that claim 3 is invalid as anticipated by an on-sale bar. *Id.*

b. Analysis and Determination

The Commission determined to review the ID's finding that Fujifilm's prior sales of prototype LTO cartridges to IBM and Seagate anticipates claim 3. Comm'n Notice, 84 *Fed. Reg.* at 10533 (Question G).

Fujifilm argues on review that the ID should be reversed because the alleged on-sale bar rests on two unproven assumptions: (1) the confidential prototype cartridges that Fujifilm sold to IBM and Seagate (and which no longer exist) conformed to the draft LTO specifications; and (2) they met all the limitations of claim 3, regardless of whether they conformed to the draft LTO specifications. Fujifilm's Br. at 31-33. Fujifilm also argues the prototypes did not constitute "commercial sales" under *Pfaff, supra,* because: (i) they were not publicly offered for sale; (ii) neither IBM nor Seagate could resell them to third parties; (iii) Fujifilm provided the prototypes solely for "evaluation and testing" and "research and development"; (iv) their mechanical design was far from complete at the time of the exchange; and (v) they had "all the hallmarks of developmental, confidential, non-commercial transactions." *Id.* at 36-38. OUII agrees that Sony failed to prove invalidity by clear and convincing evidence. OUII's Br. at 11-12.

Sony argues that the ID is correct in finding that the prototypes Fujifilm sold to Seagate and IBM satisfied the limitations of claim 3 because those prototypes had to conform to the draft LTO specifications and Fujifilm's own manufacturing drawing disclosing the relative sizes of the braking and engagement gears. Sony's Br. at 24-25, 27-28. Sony further argues that Fujifilm admitted in a brief it filed in patent litigation in Japan that the LTO cartridges it was making in mid-1999 conformed to those draft specifications. *Id.* at 26. Sony further argues that once a product has been reduced to practice, there is no "confidentiality exception" or "experimental use exception," which means Fujifilm's confidentiality agreements are immaterial. *Id.* at 28, 34-35.

The Commission has determined to reverse the ID and find there is insufficient evidence that claim 3 is invalid as anticipated by Fujifilm's prior sales of prototype cartridges to IBM and Seagate. An on-sale bar requires that the prior art must expressly or necessarily include every limitation of the contested claim. *Juicy Whip*, 292 F.3d at 737-78; *Transclean Corp. v. Bridgewood Servs., Inc.*, 290 F.3d 1364, 1373 (Fed. Cir. 2002). If the evidence is insufficient to establish by clear and convincing evidence that even one of the claim limitations is present, then the claim is not invalid under this theory. *Juicy Whip*, 292 F.3d at 738 (reversing jury verdict of invalidity due to lack of substantial evidence with respect to one claim limitation).

In this case, the prototype cartridges no longer exist. As a result, Sony's argument boils down to an assumption that the prototype cartridges that Fujifilm sent to IBM and Seagate complied with the then-available draft LTO specifications because that was the general practice of LTO tape manufacturers at that time. *See* Hr'g Tr. (von Alten) at 724:5-725:14, 728:13-18; Hr'g Tr. (Messner) at 1248:11-24. Sony's expert, Mr. von Alten, then identified where each claim limitation could purportedly be found in the draft LTO specifications and Fujifilm's drawings disclosing the relative gear sizes. ID at 147 (citing *inter alia* Hr'g Tr. (von Alten) at 835:5-840:1). Mr. von Alten, however, did not actually see the prototype cartridges, which no longer exist, and thus "can't offer an opinion on the actual cartridges." Hr'g Tr. at 868:3-7. Mr. von Alten's knowledge of the actual prototypes was limited to looking at Fujifilm's drawings and listening to the testimony of Fujifilm's engineer, Mr. Kiyoo Morita, regarding the relative diameters of the braking and engagement gears. *See id.* at 842:24-844:18, 867:26-869:6.

Mr. Morita was the only witness with personal knowledge of the Fujifilm prototype tapes. [[

]]. Mr. Morita further testified that at the time Fujifilm was helping develop Seagate cartridges in 1998-1999, it was making [[

]]. In light of the gaps in Mr. Morita's testimony about the actual prototype cartridges, Mr. von Alten's opinions regarding the actual prototypes are speculative and conclusory and thus insufficient for the purpose of proving anticipation. *See Whitserve, LLC v. Computer Packages, Inc.*, 694 F.3d 10, 24 (Fed. Cir. 2002).

Fujifilm's expert, Dr. Messner, testified that the available evidence does not clearly or convincingly show that the samples Fujifilm sent to IBM or Seagate included all the components recited in claim 3. Hr'g Tr. (Messner) at 1224:7-14. For example, the design records do not disclose a releasing member or urging member, let alone show that they conform to the structural limitations in the '905 patent for these means-plus-function terms. *See id.* at 488:9-20, 1243:22-1244:12. He further testified that the mechanical design for LTO cartridges was not complete at

the time of the sale, and Fujifilm supplied the prototypes expressly for research, development, evaluation, and testing purposes. Hr'g Tr. (Messner) at 1223:3-1224:6. In view of these uncertainties, the available evidence is not sufficiently clear and convincing to conclude that the prototypes provided by Fujifilm to Seagate or IBM were actually LTO compliant and included all of the components necessary to anticipate claim 3, regardless of Sony's assumptions to the contrary. *See* JX-0096C (Morita Dep.) at 7:11-15, 20:7-21:20, 28:3-19, 22.

The Commission also finds that the statements Fujifilm made in its brief for a Japanese patent litigation are not sufficient. Even if taken at face value, those statements do not specifically refer to the prototypes that Fujifilm sent to IBM or Seagate. [[

]]. In light of the testimony recounted above, Fujifilm's Japanese brief does not provide sufficiently clear and convincing evidence to conclude that the actual prototypes it sent to IBM or Seagate were necessarily compliant with the LTO specifications, as the commercial tapes that Fujifilm was planning to mass produce would later be.

There is also no dispute that the samples that Fujifilm provided to IBM and Seagate were sold for testing and evaluation purposes only, were subject to confidentiality agreements, and could not be resold to third parties. *See* Hr'g Tr. (Messner) at 1223:6-1224:6. Sony claims that there is no confidentiality exception or experimental use exception to anticipation once a product is ready for patenting. *See* Sony's Resp. at 28, 34-35 (collecting cases). But the ID assumes the prototypes were "ready for patenting" for the same reasons it assumes they satisfied all of the limitations of claim 3. ID at 147. For reasons given earlier, however, the evidence in this case indicates that some of the prototypes that Fujifilm provided to IBM and Seagate were incomplete

at the time they were transferred; their design was subject to change; some of the prototypes were based on specifications or drawings supplied by Seagate, not Fujifilm; and their specific attributes remain unclear. The Commission finds the evidence is not clear and convincing that Fujifilm's invention was ready for patenting at the time it sold prototypes to Seagate and IBM.

For the foregoing reasons, the Commission has determined to reverse the ID and find that Sony has not proven by clear and convincing evidence that claim 3 of the '905 patent is invalid as anticipated by an on-sale bar arising from Fujifilm's prior sales of prototype cartridges to Seagate and IBM.

3. Review of Anticipation or Obviousness By McAllister-I

a. The ID

Sony also asserted that claim 3 of the '905 patent is invalid as anticipated or obvious in view of the prior art McAllister-I patent (U.S. Patent No. 5,901,916, RX-0251). ID at 140. The ID finds no dispute that McAllister-I discloses all of the limitations of claim 3, with the singular exception of the limitation requiring "the outer diameter of the engagement gear being larger than that of the braking gear." *Id.* at 140 (quoting '905 patent at 10:23-27). In pertinent part, the ID finds that McAllister-I discloses a braking gear (or "locking gear," 42, in yellow, below) and an engagement gear (represented by the blue teeth, 44, on top of "reel gear 34"), as shown for example in Figure 4B, below. McAllister-1, Fig. 4B (color-coded by Sony, RDX-0006.030); *see also* Figs. 3, 4A, 6, 8-9. Sony argued that these figures disclose an engagement gear with a diameter larger than that of the braking gear, as required by claim 3 of the '899 patent.

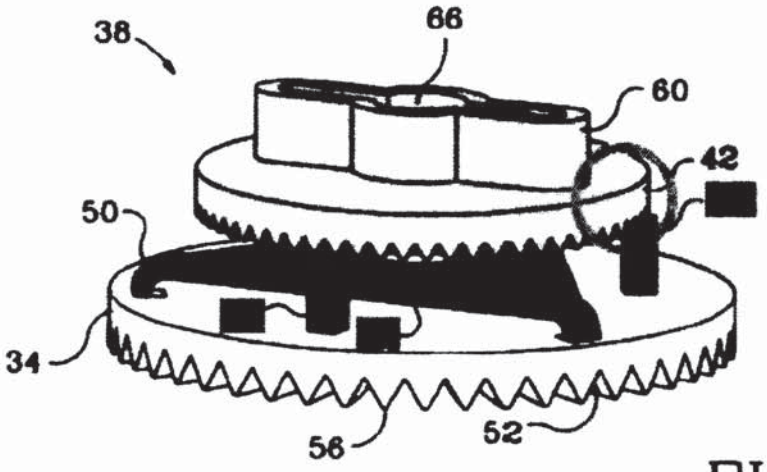


FIG. 4B

The ID finds, however, that McAllister-I has no scale or descriptive text to confirm that the engagement gear has a larger diameter than the braking gear. "This dispute ultimately boils down to whether the figures in McAllister-I can be treated as if they were drawn to scale," even McAllister-I provides no such scale, the ID states. ID at 140. The ID finds the figures in McAllister-I are insufficient to prove anticipation because there is a "significant body of authority forbidding the interpretation of patent drawings as drawn to scale when there is no indication in the patent itself that such was the case." *Id.* at 140-41 (collecting cases). The ID concludes that Sony has not proven by clear and convincing evidence that McAllister-I anticipates claim 3. *Id.* at 141-42.

The ID also rejects Sony's argument that claim 3 was obvious over McAllister-I. *Id.* at 144. While acknowledging that there are only a finite number of possibilities regarding relative gear diameters – *i.e.*, the engagement gear can be larger than, smaller than, or the same size as the braking gear – the ID finds that McAllister-I provides no teachings as to which parameters are critical to determining the relative sizes of the engagement and braking gears, or which choice was likely to be successful. *Id.* at 143-144 (discussing *inter alia Cyclobenzaprine*

Hydrochloride Extended-Release Capsule Patent Litigation, 676 F.3d 1063, 1070-71 (Fed. Cir. 2012)). The ID also finds no indication that the relative sizes or clearances of the gears was of any concern in the prior art. *Id.* at 144. The ID thus rejects testimony by Sony's expert, Mr. von Alten, that a person skilled in the art would have found it obvious to make the braking gear smaller than the engagement gear to provide additional clearance in the reel hub. *Id.* Fujifilm's expert testified that the same result could be obtained by making the gears the same size, and that enlarging one gear with respect to the other would lead to wasted space and materials. *Id.*

b. Analysis and Determination

The Commission determined to review the ID's findings that McAllister-I does not anticipate claim 3 or render it obvious. Comm'n Notice, 84 *Fed. Reg.* at 10533. Sony argues on review that McAllister-I always shows the engagement gear (44, in blue) as having a larger diameter than the braking gear (42, in yellow), and that patent drawings need not be to scale to depict purely relational limitations (*e.g.*, "larger than," "smaller than"). Sony's Br. at 36-39.[16]

Sony further argues that even if McAllister-I does not anticipate claim 3, it makes claim 3 obvious. Sony contends that McAllister-I has been found to disclose every limitation of claim 3, except for the engagement gear having a larger diameter than the braking gear. *Id.* 40. Sony claims a person skilled in the art would know there are only three possible gear relationships – the outer diameter of the engagement gear can be larger than, smaller than, or the same size as

[16] Sony cites, for example, *Plasmart, Inc. v. Kappos*, 482 F. App'x 568, 572-73 (Fed. Cir. 2012) (when "the prior art features are clearly disclosed by the drawing" in a prior art patent, the patent drawings can be relied upon "without referring to the surrounding description"); *Koito Mfg. Co. v. Turn-Key-Tech, LLC*, 381 F.3d 1142, 1154-55 (Fed. Cir. 2004) (unscaled patent drawings disclosed a channel "significantly thicker and wider" than an adjacent cavity); *In re Mraz*, 455 F.2d 1069, 1072 (C.C.P.A. 1972) (finding that a drawing disclosed an angle "not exceeding 15°" despite making no reference to angles in the patent text); *In re Wolfensperger*, 302 F.2d 950, 959 (C.C.P.A. 1962) (finding it proper to rely on patent drawings for "relative width and depth dimensions"). *See* Sony's Br. at 37-39.

that of the braking gear. *Id.* at 40, 41. Sony's expert Mr. von Alten testified that a person skilled in the art would have found it obvious to make the braking gear smaller in diameter than the engagement gear to ensure that there is sufficient clearance between the (smaller) braking gear (42) and the hub that rotates around it, and that those relative sizes have been a standard gearing arrangement since at least the early 1990s. *Id.* at 40, 42. OUII agrees to the extent it believes the case for obviousness is "far stronger" than anticipation. OUII's Br. at 12-13.

Fujifilm responds that Sony is improperly relying on unsupported inferences from McAllister-I because there is no dispute that it does not explicitly disclose "the outer diameter of the engagement gear being larger than that of the braking gear." Fujifilm's Br. at 38-40. Fujifilm further argues that Sony has not shown that claim 3 is obvious over McAllister-I because its expert's testimony is unsupported, speculative, and "directly contradictory to the teachings of McAllister-I" about saving "valuable space" within the cartridge. *Id.* at 40-41. These teachings and the need to ensure "sufficient operational clearance," Fujifilm contends, would weigh in favor of making both gears smaller and equal in diameter, not larger and unequal in diameter. *Id.* at 41-42.

The Commission agrees with the ID that McAllister-I's disclosures are not sufficiently clear or unambiguous to find that the diameter of the engagement gear is larger than that of the braking gear, as required to anticipate claim 3. This uncertainty distinguishes the present case from *Koito Mfg. Co. v. Turn-Key-Tech, LLC,* 381 F.3d 1142, 1154-55 (Fed. Cir. 2004), cited by Sony, where the Federal Circuit found that the unscaled patent drawing in question "clearly shows" that the flow channel was "significantly thicker and wider" than an adjacent mold cavity. *Koito*, moreover, involved a dispute over the adequacy of the invention's written description, not obviousness or anticipation. *Id.* Another case cited by Sony, *Krippelz v. Ford Motor Co.*, 667

F.3d 1261, 1268 (Fed. Cir. 2012), does not actually hold that unscaled drawings can be a reliable basis for finding anticipation. To the contrary, the Federal Circuit wrote that "[t]his court has repeatedly cautioned against overreliance on drawings that are neither expressly to scale nor linked to quantitative values in the specification." *Id.* The reason the Court held that it was not improper for the jury to rely on "ray trace diagrams" that were based on unscaled patent drawings was not because of the supposed reliability of those unscaled drawings but because Ford did not appeal the lower court's denial of Ford's motion to exclude those diagrams. *Id.*

Although McAllister-I is not sufficiently clear to anticipate claim 3, the Commission has determined to reverse the ID and find that claim 3 is obvious over McAllister-I. McAllister-I, the ID found, discloses all of the other limitations of claim 3, save for the engagement gear being larger in diameter than the braking gear. ID at 140 (quoting '905 patent at 10:23-27). Notably, the '905 patent impose no other limitations on the relative sizes of the engagement gear and braking gear, apart from saying the former is "larger" in diameter than the second. *See id.*

Sony and OUII claim there are only three possible gear size relationships – *i.e.*, the diameter of the engagement may be greater than, less than, or equal to the diameter of the braking gear. But obviousness begins with an analysis of the scope and content of the prior art (here, McAllister-I) and the differences between that prior art and the claimed invention, as viewed from in the context of the knowledge and skill of a person skilled in the art, plus secondary considerations of obviousness if present. *See ZUP*, 896 F.3d at 1371. Even if McAllister-I is not clear enough to find that the engagement gear is necessarily larger than the braking gear, this does not mean that it does not disclose anything regarding the relative gear sizes. Looking at McAllister-I reveals two possibilities – the diameter of the engagement gear is either larger than that of the braking gear or they are equal. *See, e.g.,* Hr'g Tr. (van Alten) at

753:2-17 (a "fair inference" from McAllister-I's drawings, without measuring, is that the braking gear is smaller than the engagement gear). No party has argued that McAllister-I expressly discloses a braking gear that is larger than the engagement gear. Thus, while McAllister-I may not be sufficiently definite to find that the engagement gear *must be* larger than the braking gear for anticipation, it is sufficient to teach a person skilled in the art that the engagement gear *can be* larger than the braking gear for purposes of obviousness. *See KSR*, 550 U.S. at 421, 427 (discussing predictable or known design solutions); *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1382 (Fed. Cir. 2007) (finding a person of ordinary skill in the art could appropriately size components for a particular application); *see also* Hr'g Tr. (van Alten) at 753:2-17.

Obviousness must also consider "the knowledge, creativity, and common sense that an ordinarily skilled artisan would have brought to bear when considering combinations or modifications," the "inferences and creative steps that a person of ordinary skill in the art would employ," and "demands known to the design community." *Intercontinental Great Brands*, 869 F.3d at 1344 (quoting *KSR*, 550 U.S. at 417-18, 427). Where there is a design need or market pressure and a finite number of identified, predictable solutions that lie within the grasp of a person skilled in the art, the combination may be obvious. *See KSR*, 550 U.S. at 420-21.

Given that McAllister-I discloses all of the other limitations of claim 3, the Commission finds it would have been an obvious and predictable design choice for a person skilled in the art to make McAllister-I's braking gear smaller than the engagement gear, and that skilled artisan would have had a reasonable chance of success in doing so. *See id.* at 421, 427. A skilled artisan would have been motivated to make McAllister-I's braking gear (42) smaller in diameter than the engagement gear (44) to ensure there is sufficient clearance between the braking gear and the hub that rotates around it. *See* Hr'g Tr. (van Alten) at 754:14-755:2, 756:9-757:5, 775:2-

16. While another skilled artisan may have been motivated to save space by making the gears the same size, as Fujifilm argues (*see* Hr'g Tr. (Messner) at 1216:1-1218:5), "obviousness does not require that the motivation be the *best* option, only that it be a *suitable* option from which the prior art did not teach away." *Bayer Pharma AG v. Watson Labs., Inc.,* 874 F.3d 1316, 1328 (Fed. Cir. 2017) (emphasis in original; internal quotes omitted); *Novartis Pharms. Corp. v. West-Ward Pharms. Int'l Ltd.*, 923 F.3d 1051, 1054 (Fed. Cir. 2019) ("[o]ur case law does not require that a particular combination must be the preferred, or the most desirable, combination described in the prior art in order to provide motivation for the current invention" (quotes omitted)).[17]

McAllister-I itself teaches that the braking gear teeth (42) and engagement gear teeth (44) are "sized and shaped to fit" together, but "[o]ther suitable structures could also be used to achieve this operative engagement between locking gear 42 and real gear 34." McAllister-I at 3:16-18, 3:26-28; *see also id.* at 4:39-48 ("other modifications and variations are possible without departing from the spirit and scope of the invention"). McAllister-I, moreover, does not attach any importance to the relative sizes of the braking and engagement gears, and thus does not teach away from any specific gear size relationship (apart from not disclosing a braking gear larger than the engagement gear). *See id.* Motivation is "not limited to the same motivation that

[17] This conclusion comports with older patent cases that held that "a mere change in proportion would involve no more than mechanical skill and would not amount to invention." *Powers-Kennedy Contracting Corp. v. Concrete Mixing & Conveying Co.*, 282 U.S. 175, 185 (1930); *accord Dunbar v. Myers*, 94 U.S. 187, 199 (1876) ("Meritorious inventors are entitled to protection; but it is settled law that a mere carrying forward of an original patented conception, involving only change of form, proportions, or degree, or the substitution of equivalents, doing the same thing as the original invention by substantially the same means, is not such an invention as will sustain a patent, even though the changes of the kind may produce better results."); *Gardner v. TEC Sys., Inc.*, 725 F.2d 1338, 1349 (Fed. Cir. 1984) (affirming obviousness determination where "the [claimed] dimensional limitations did not specify a device which performed and operated any differently from the prior art."); *In re Williams*, 36 F.2d 436, 438 (C.C.P.A. 1929) ("There is no invention in changing the size and proportion of a device or machine so long as the construction and mode of operation remain the same").

motivated the inventors," but it "may be found in many different places and forms." *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1197 (Fed. Cir. 2014) (quotes omitted). Thus, the motivation identified by Fujifilm does not obviate or erase the motivation identified by Sony; rather, they point to different design options that were available to persons skilled in the art in different contexts and settings at the time of the invention. *See id.*

The ID acknowledges Fujifilm's long-felt need and copying arguments but declines to make any findings regarding them, presumably because the ID finds claim 3 is not obvious. *See* ID at 149, 171. On review, Fujifilm did not raise any secondary considerations arguments. *See generally* Fujifilm's Resp. to Respondents' Pet. for Review at 67-82 (defense of validity of '905 patent claims makes no mention of secondary considerations); Fujifilm's Br. at 38-42 (same); Fujifilm's Reply at 28-32 (same). Accordingly, Fujifilm has abandoned its secondary considerations arguments. *See* 19 C.F.R. § 210.43(c) ("Any argument not relied on in a response will be deemed to have been abandoned and may be disregarded by the Commission."). Thus, the Commission finds that the secondary considerations do not provide a material rebuttal to the Commission's prima facie obviousness determination. *See Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1348-49 (Fed. Cir. 2012).

For the reasons given above, the Commission concludes there is clear and convincing evidence that claim 3 of the '905 patent is invalid as obvious in view of McAllister-I.

V. REMEDY, THE PUBLIC INTEREST, AND BONDING

For the reasons set forth above, the Commission has determined that Sony violated Section 337 by importing, selling for importation, or selling in the United States after importation certain LTO-4, LTO-5, and LTO-6 tapes that infringe one of more of asserted claims 1-5 of the '256 patent and claims 1, 7, 11, and 12 of the '899 patent. Sony's LTO-8 tapes are no

longer at issue because the Commission has determined that claims 1-3 of the '905 patent, the only claims the LTO-8 tapes are alleged to infringed, are either not infringed or invalid.

A. Remedy

1. Limited Exclusion Order

Having found a violation of Section 337, the Commission has determined to issue a limited exclusion order ("LEO") against Sony with a certification provision to permit importation of: (1) Sony LTO tapes that are used only for LTO compliance testing and verification; and (2) Sony LTO-6 tapes that Sony certifies do not infringe the '899 patent. Sony LTO tapes that are imported by or for the U.S. Government are also exempt from the LEO by statute, pursuant to 19 U.S.C. § 1337(1) and 28 U.S.C. § 1498.

With respect to the first exemption, the Commission finds there is no dispute that permitting entry of covered goods strictly for LTO compliance testing and verification is necessary and appropriate in this case. *See, e.g.,* Fujifilm's Reply at 34.

With respect to the second exemption, the Commission finds that a certification provision is appropriate with respect to the '899 patent, given that the evidentiary record shows that Sony's LTO-6 product line includes both infringing and non-infringing products. Sony may thus certify that certain LTO-6 tapes do not infringe the '899 patent, provided it makes a showing that it has taken at least three measurements from the beginning, middle, and end of the subject tape products, and that the average of those measurements from the same subject tape does not fall within the claimed ranges for projection heights and densities, or that those tapes do not satisfy another specific claim limitation(s). This certification provision, however, is limited to the '899 patent and does not extend to any other patents the Sony LTO-6 has been found to infringe.

With respect to Sony's third requested exemption, the RD recommends against exempting products imported for warranty repair and replacement due to Sony's failure to timely

submit any evidence in this investigation relating to the LTO tapes that are actually at issue. RD at 174. Even though the Commission included a similar warranty exemption in *Storage Tapes I,* Inv. No. 337-TA-1012, the RD notes that Sony had presented sufficient evidence in that investigation to support its requested warranty exemption, and the remedial orders affect LTO-7 tape products that are not at issue here. In this case, in contrast, the RD finds that Sony failed to present any such evidence while this case was before the ALJ. RD at 174; OUII's Reply at 7-8 (Sony failed to request a warranty exemption in either its initial or responsive post-hearing brief).

Sony attempts to address this shortcoming by attaching warranty agreements and other pertinent documents to its opening brief on review. Sony's Br. at 47-58 and attachments thereto. There is no indication, however, that those documents were admitted into the hearing record. In fact, Sony makes no claim that it even produced those documents during fact discovery. *See id.* Rather, Sony merely asserts that "[w]hen Sony sells its LTO products, it does so under a warranty guaranteeing to repair or replace defective units" (*id.* at 47), without mentioning that the language of the warranty actually gives Sony the option to either refund the purchase price or replace the defective products. *See, e.g.,* Sony Reply, Exh. 3, "Storage Media Warranty Information" ("If Sony determines the product to be defective in materials or workmanship, Sony will replace the product at no charge or, at Sony's option, refund the purchase price shown on your receipt."). Sony does not otherwise rebut the RD's finding that there is no evidence of record to support a warranty exemption. Sony's Reply at 40.

OUII objects to Sony's new allegation that its OEM customers "rely on Sony's warranty to offer warranties to their own customers and anticipate significant service disruptions if they cannot honor these warranties" on two grounds: (1) the request is untimely and therefore waived under the Ground Rules; and (2) Sony's new argument relies upon two customer letters

submitted in the *Storage Tapes I* investigation but not in the instant investigation. OUII Reply at 7 (citing Sony Br. at 47-48). As noted in the RD, the *Storage Tapes I* investigation involved LTO-7 products, which are not at issue in the present investigation.

Fujifilm also argues that the Commission should deny Sony's request for a warranty exemption and criticizes Sony for its failure to address the RD's finding that Sony provided no evidence to support its warranty exemption. Fujifilm's Reply at 34. Neither Fujifilm nor OUII took a position on this issue before the ALJ (RD at 172), and neither of these parties commented on the substance of the new warranty documents submitted by Sony in its opening brief.

The Commission finds that Sony has made no attempt to justify or explain its failure to present any evidence to support a warranty exemption in the proceedings before the ALJ. *See* Sony's Reply at 40. This failure is particularly problematic where the Commission notified the parties that it had directed the ALJ to "take evidence or other information and hear arguments from the parties and other interested persons with respect to the public interest in this investigation, as appropriate, and provide the Commission with findings of fact and a recommended determination on this [public interest] issue." 82 *Fed. Reg.* 49421 (Oct. 25, 2017). As a result, Sony's representation concerning its OEM customers' needs for a warranty exemption is unsupported by any evidence of record in this investigation. Sony instead predicates its representation upon customer letters it submitted *in the 1012 investigation,* which pertain only to the LTO-7 products, and *not* to any of the LTO-4, LTO-5, and LTO-6 products at issue here. The Commission further finds that Sony's tardy submission of warranty documents fails to comport with the ALJ's Ground Rules. Sony has also been less than forthcoming by failing to explain that its warranties give it the option to provide a refund rather than replace or

repair the subject product. The Commission thus adopts the RD's recommendation not to include Sony's requested warranty provision in the remedial orders. RD at 174.

The Commission also adopts the RD's recommendation not to include exemptions to accommodate Sony's [[ ]], state or local government agencies, or other Sony customers. *See* RD at 173; Sony's Br. at 46-47. To the extent Sony can demonstrate that [[

]], the language of the Commission's limited exclusion order (¶ 1) and cease and desist orders (Section IV(A)) already permits Sony to engage in importation, sales after importation, or other conduct that Fujifilm, as owner of the '256 and '899 patents, has licensed or authorized in a written instrument. The Commission finds Sony's other concerns to be unsupported by the record and too speculative and vague to support any further exemptions.

Likewise, the Commission has determined not to require Fujifilm to report quarterly on its domestic industry activities, as Sony's concerns are too speculative and unfounded at this time. *See* RD at 174-75; Sony's Br. at 48-49.

2. Cease and Desist Orders

Section 337 provides that in addition to, or in lieu of, the issuance of an exclusion order, the Commission may issue a cease and desist order ("CDO") as a remedy for a violation of Section 337. *See* 19 U.S.C. § 1337(f)(1). Cease and desist orders are generally issued when respondents maintain commercially significant inventories of the imported infringing products in the United States or have significant domestic operations that could undercut the remedy provided by the exclusion order.[18] *See, e.g., Storage Tapes I*, Inv. No. 337-TA-1012, Comm'n

[18] When the presence of an infringing domestic inventory is asserted as the basis for a CDO under Section 337(f)(1), Commissioner Schmidtlein does not adopt the view that the inventory needs to be "commercially significant" in order to issue the CDO. *See, e.g., Certain Magnetic*

Op. at 129 (collecting cases). "[T]here is no lower limit on the number of articles a domestic respondent must have in inventory before that inventory can be found to be commercially significant." *Certain Magnetic Tape Cartridges*, Inv. No. 337-TA-1058, Comm'n Op. at 65 (quoting *Certain Agricultural Vehicles and Components Thereof*, Inv. No. 337-TA-487, Comm'n Op. at 14 (Sept. 24, 2004)). A complainant seeking a cease and desist order must demonstrate, based on the record, that this remedy is necessary to address the violation found in the investigation so as not to undercut the relief provided by the exclusion order. *Storage Tapes I*, Inv. No. 337-TA-1012, Comm'n Op. at 130.

The Commission has also determined to adopt the RD's recommendation and issue CDOs against Sony's U.S. subsidiaries, namely, Sony DADC and Sony Latin American. *See* RD at 176-77. The Commission has previously held that a two-month inventory of magnetic tapes is "commercially significant." *Storage Tape* I, Inv. No. 337-TA-1012, Comm'n Op. at 132. In this case, Fujifilm contends that Sony DADC and Sony Latin America have a total inventory of about eleven months for LTO-4 tapes, nearly nine months for LTO-5 tapes, and over five months for LTO-6 tapes. Fujifilm's Br. at 47-48. Sony does not dispute these inventory figures, nor does it contest the propriety of entering a CDO if a violation is found, subject to the exemptions and public interest factors it identifies. *See generally* Sony's Br. at 43-49; Sony's Reply at 37-39. OUII supports issuance of a CDO. OUII's Br. at 15-16.

Tape Cartridges and Components Thereof, Inv. No. 337-TA-1058, Comm'n Op. at 65 n.24 (March 25, 2019); *Certain Table Saws Incorporating Active Injury Mitigation Technology and Components Thereof*, Inv. No. 337-TA-965, Comm'n Op. at 6-7, n.2 (Feb. 1, 2017). In Commissioner Schmidtlein's view, the presence of some infringing domestic inventory, regardless of its commercial significance, provides a basis to issue a CDO. *Certain Table Saws*, Inv. No. 337-TA-965, Comm'n Op. at 6-7, n.2.

Accordingly, the Commission has determined to issue CDOs against Sony DADC and Sony Latin America. The CDOs include the exemptions described earlier, namely, for covered LTO tapes that Sony certifies: (1) are to be used strictly for LTO compliance testing and verification; or (2) are non-infringing, to be shown in the manner described earlier.

B. The Public Interest

Pursuant to the notice of investigation, 82 *Fed. Reg.* 49421 (Oct. 25, 2017), the ALJ heard evidence and arguments regarding the public interest and included findings of fact and recommendations on this issue in the RD. *See generally* RD at 180-185. The public interest factors weigh the effects of a potential remedy on: (1) public health and welfare; (2) competitive conditions in the United States economy; (3) the production of like or directly competitive articles in the United States; and (4) United States consumers. 19 U.S.C. § 1337(d)(1) (cited in ID at 180). The public interest also favors enforcement of valid intellectual property rights by excluding infringing products, the RD explains. *Id.* (citing *Certain Two-Handle Centerset Faucets & Escutcheons & Components Thereof*, Inv. No. 337-TA-422, Comm'n Op. at 9 (July 21, 2000)). The RD finds that the public interest factors identified by Sony do not outweigh the public's legitimate interest in protecting valid intellectual property rights by excluding infringing products. *See id.* at 180-81.

Having reviewed the parties' submissions on this issue, the RD, and the evidence of record, the Commission finds that the public interest factors do not weigh against issuance of the limited exclusion order or cease and desist orders as tailored in the manner above. With regard to public welfare, Sony contends that the remedial orders would adversely affect research institutions, state and local governments, customers in finance and banking, and others that rely on Sony's LTO data storage products "because most, if not all, cannot easily switch to other technologies, given their budgetary constraints." Sony's Br. at 43-44 (citing Hr'g Tr. (Jarosz) at

668:12-669:4). The cited testimony, however, does not mention switching, budgetary constraints, or other technologies. *See* Hr'g Tr. (Jarosz) at 668:12-669:4. *Accord* RD at 185 (citing Hr'g Tr. (Jarosz) at 668:12-669:4) ("The portion of hearing testimony cited in Sony's brief does not explain what kind of harm these entities would suffer or the extent of any harm."). The record indicates that magnetic tapes account for only about 5 percent of the total data storage media market, which means alternative storage technologies, such as hard disk drive storage, optical disk media, proprietary magnetic tapes, and other data storage products, are available. Hr'g Tr. (Vander Veen) at 167:19-170:15. Concerns over the effects of excluding Sony's LTO-8 are also moot because, for the reasons given earlier, the Commission has determined that claims 1-3 of the '905 patent, the only claims Sony's LTO-8 are accused for infringing, are either not infringed by the LTO-8 tapes or invalid. Accordingly, Sony has failed to show how, apart from inconvenience, an exclusion order would impact public welfare.

Sony further argues that any remedial orders would give Fujifilm a monopoly position for the entire LTO-4, LTO-5, and LTO-6 market, and leave no supplier at all for LTO-8 tapes (if excluded). Sony's Br. at 44. The evidence suggests the contrary, given that the Commission has already issued an exclusion order covering Fujifilm LTO-4, LTO-5, and LTO-6 products in a previous investigation. *See Magnetic Tape Cartridges*, Inv. No. 337-TA-1058, Comm'n Op. at 65-66, 68. The Commission has also found in similar situations that removing a second supplier from the market does not justify denying a remedy. *See, e.g., Storage Tapes I*, Inv. No. 337-TA-1012, Comm'n Op. at 138-139. "Even assuming that customers would be completely averse to utilizing non-tape storage products . . . there is no evidence that customers would be unduly harmed by relying on Fujifilm as the sole supplier." *Id.* at 144. Sony offers no persuasive evidence to the contrary in the present investigation. Furthermore, Sony's concerns over the

LTO-8 market are moot, because, as noted above, the Commission has determined that claims 1-3 of the '905 patent, the only patent claims asserted against the Sony LTO-8 tapes, are either invalid or not infringed.

The Commission also finds that its remedial orders are not likely to severely impact consumers or the production of like or competitive products in the United States. As noted above, Sony's concerns over the LTO-8 market are moot because those tapes do not infringe any valid asserted patent claim and thus are not covered by the remedial orders. The Commission further agrees with the RD that Sony's concerns that Fujifilm would have a "monopoly position" in the LTO market are without merit. As the RD found, LTO products account for only a small share of the total data storage market and continue to face steep competition from hard disk drives and memory technologies. RD at 182 (citing Hr'g Tr. (Vander Veen) at 167:19-168:8; *Storage Tapes I*, Inv. No. 337-TA-1012, Comm'n Op. at 139, 144). These competing memory technologies would severely constrain Fujifilm's ability to raise prices for its LTO products, regardless of its market share. *See* Hr'g Tr. (Vander Veen) at 168:9-169:9. The evidence further shows that Fujifilm has the capacity to meet increases in customer demands that may result from the remedial orders, and would have an incentive to increase domestic production, rather than put that production at risk. *See id.* at 163:24-166:11, 167:19-24, 169:10-170:15; Fujifilm's Reply at 35. There is no basis to find, then, that innovation or consumer needs would be necessarily or substantially harmed by issuance of the remedial orders. The ALJ, moreover, found the testimony of Sony's expert on this subject was "entirely speculative" and unfounded. RD at 183 (discussing Hr'g Tr. (Jarosz) at 665:13-668:11). The only material evidence Sony cited was an innovation roadmap, which seems to indicate that development of future LTO generations "is already being considered," according to the RD. RD at 184 (discussing RX-415).

The Commission further agrees with the RD that Sony's remaining concerns over other LTO tapes are speculative. *See* RD at 182-85 (citing *inter alia Storage Tapes I*, Inv. No. 337-TA-1012, Comm'n Op. at 139, 144-145). Sony's other concerns over products imported or sold under licenses or for compliance verification and testing purposes are alleviated by the exemptions the Commission has included in the remedial orders.

C. Bond

The RD recommends that the Commission impose during the period of Presidential review individual bond rates on each LTO generation: (a) 10.4 percent of entered value for Sony's branded LTO-4 tapes; (b) 7.9 percent for Sony's branded LTO-6 tapes; and (c) 16.8 percent for Sony's OEM LTO-6 tapes. RD at 178-80. No bond is recommended for Sony's OEM LTO-4 tapes or its LTO-5 tapes (branded and OEM) because Sony's prices are higher than Fujifilm's prices for the same products. *Id.* at 178. No party disputes the RD's underlying price differential calculations. *Id.* at 180.

The Commission finds that the RD's recommendations are based on reliable price information, which has not been seriously challenged by any party. *See id.* Accordingly, the Commission agrees to set the bond rates in the manner recommended by the RD.

VI. CONCLUSION

For the reasons discussed above, the Commission has determined that Sony violated Section 337 by importing into the United States, selling for importation, or selling in the United States after importation certain LTO-4, LTO-5, and LTO-6 tape products that infringe one or more of asserted claims 1-5 of the '256 patent and claims 1, 7, 11, and 12 of the '899 patent. The Commission finds no violation with respect to the asserted claims of the '451 and '905 patents. The Commission has determined to issue a limited exclusion order against Sony and

cease and desist orders against its U.S. subsidiaries, Sony DADC and Sony Latin America. The Commission finds that the public interest factors do not weigh against issuing these remedial orders. The Commission has further determined that during the period of Presidential review, differential bond rates shall be applied to the covered Sony products as follows: (a) 10.4 percent of entered value for Sony's branded LTO-4 tapes; (b) 7.9 percent of entered value for Sony's branded LTO-6 tapes; and (c) 16.8 percent of entered value for Sony's OEM LTO-6 tapes. The Commission has not set a bond on Sony's LTO-5 tapes (branded and OEM) or its OEM LTO-4 tapes.

By order of the Commission.

Lisa R. Barton
Secretary to the Commission

Issued: June 20, 2019

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **COMMISSION OPINION** has been served by hand upon the Commission Investigative Attorney, **Todd Taylor, Esq.**, and the following parties as indicated, on **June 20, 2019**.

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