Exhibit 7

PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

In the Matter of	
CERTAIN WIRELESS CONSUMER ELECTRONICS DEVICES AND COMPONENTS THEREOF	Inv. No. 337-TA-853

COMMISSION OPINION

On September 6, 2013, the presiding administrative law judge ("ALJ") issued his final initial determination ("ID"), finding no violation of section 337, and his recommended determination on remedy and bonding.

Having examined the record of this investigation, including the ALJ's final ID, the petitions for review and the responses thereto, and the parties' submissions on review, the Commission has determined to find no violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337 ("section 337") with respect to U.S. Patent No. 5,809,336 ("the '336 patent"). Specifically, the Commission affirms the ID's claim constructions as to claims 6 and 13 of the '336 patent. Regarding infringement, the Commission affirms with modification the ALJ's finding that the accused products do not satisfy the "entire oscillator," "varying," and "external clock" limitations of claims 6 and 13. Moreover, the Commission affirms the ALJ's finding that Complainants failed to prove indirect infringement. With respect to the domestic industry requirement, the Commission finds that Complainants have satisfied the economic prong of the domestic industry requirement based on modified reasoning. The Commission has determined to adopt the ALJ's findings that are consistent with the Commission's opinion as set

forth below.

I. BACKGROUND

A. Procedural History

The Commission instituted this investigation on August 24, 2012, based on a complaint filed by Technology Properties Limited LLC ("TPL") and Phoenix Digital Solutions LLC ("PDS"), both of Cupertino, California; and Patriot Scientific Corporation of Carlsbad, California (collectively "Complainants"). 77 *Fed. Reg.* 51572-573 (August 24, 2012). The complaint alleges violations of section 337 in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain wireless consumer electronics devices and components thereof by reason of infringement of claims 1, 6, 7, 9-11, and 13-16 of the '336 patent. The Commission's notice of investigation named the following respondents: Acer, Inc. of Taipei, Taiwan and Acer America Corporation of San Jose, California (collectively "Acer"); Amazon.com, Inc. of Seattle, Washington ("Amazon"); Barnes and Noble, Inc. of New York, New York ("B&N"); Garmin Ltd of Schaffhausen, Switzerland, Garmin International, Inc. of Olathe, Kansas, and Garmin USA, Inc. of Olathe, Kansas (collectively "Garmin"); HTC Corporation of Taoyuan, Taiwan and HTC America of Bellevue, Washington (collectively "HTC"); Huawei Technologies Co, Ltd. of Shenzhen, China ("Huawei Tech."); Huawei North America of Plano, Texas ("Huawei NA"); Kyocera Corporation of Kyoto, Japan and Kyocera Communications, Inc. of San Diego, California (collectively "Kyocera"); LG Electronics, Inc. of Seoul, Republic of Korea and LG Electronics U.S.A., Inc. of Englewood Cliffs, New Jersey (collectively "LG"); Nintendo Co. Ltd. of Kyoto, Japan and Nintendo of America, Inc. of Redmond, Washington (collectively "Nintendo"); Novatel Wireless, Inc. of San

Diego, California ("Novatel"); Samsung Electronics Co., Ltd., of Seoul, Korea and Samsung Electronics America, Inc. of Ridgefield Park, New Jersey (collectively "Samsung"); Sierra Wireless, Inc. of British Columbia, Canada and Sierra Wireless America, Inc. of Carlsbad, California (collectively "Sierra"); and ZTE Corporation of Shenzhen, China and ZTE (USA) Inc. of Richardson, Texas (collectively "ZTE"). The Office of Unfair Import Investigations was named as a participating party. The issue of public interest was delegated to the ALJ. 77 *Fed. Reg.* at 51572.

The Commission later amended the Notice of Investigation to remove Huawei NA as a respondent and to add Huawei Device Co., Ltd. of Shenzhen, China; Huawei Device USA Inc. of Plano, Texas; and Futurewei Technologies, Inc. d/b/a Huawei Technologies (USA) of Plano, Texas ("new Huawei respondents") as respondents. 78 *Fed. Reg.* 12354 (Feb. 22, 2013). The Commission later terminated respondents Sierra, Kyocera, Amazon, and Acer from the investigation. Notice (Feb. 4, 2013); Notice (Sept. 20, 2013); 78 *Fed. Reg.* 71643-45 (Nov. 29, 2013) ("Notice of Review").[1]

On March 5, 2013, the ALJ held a Markman hearing with respect to the disputed claim language in the asserted patent. On April 18, 2013, the ALJ issued Order No. 31 ("the Markman Order") construing the disputed claim terms of the '336 patent.

On September 6, 2013, the ALJ issued his final ID, finding no violation of section 337,

[1] The remaining respondents in this investigation are as follows: B&N, Garmin, HTC, Huawei Tech. and the new Huawei respondents, LG, Novatel, Samsung, and ZTE (hereinafter "Respondents"). Respondent Nintendo was accused of infringing only claims 1 and 11, for which the Commission determined not to review the ALJ's findings of no infringement. 78 *Fed. Reg.* at 3-4.

and his recommended determination on remedy and bonding. In particular, the ALJ found that the importation requirement of section 337 is satisfied. The ALJ also found that none of the accused products directly or indirectly infringe the asserted claims of the '336 patent. In addition, the ALJ found that the asserted claims of the '336 patent have not been proven to be invalid.[2] Further, the ALJ found that respondents have not shown that the accused LG product is covered by a license to the '336 patent. With respect to the issue of domestic industry, the ALJ found that Complainants have satisfied the domestic industry requirement for the '336 patent pursuant to 19 U.S.C. 1337(a)(3)(C) for the '336 patent. The ALJ also found that no public interest issues are raised by enforcement of a remedy with respect to any of the respondents that would preclude issuance of a remedy if the Commission were to find a violation of section 337.[3]

On September 12, 2013, the ALJ issued a Notice of Clarification supplementing the final ID, explaining that the list of chips referenced on page 119 of the ID is located on page 88 of the ID. Notice of Clarification Regarding Final Initial Determination (Sept. 12, 2013) ("Notice of Clarification").

On September 23, 2013, Complainants filed a petition for review of certain aspects of the final ID, concerning only asserted claims 6 and 13 of the '336 patent. In particular, Complainants requested review of the ID's construction of the "entire oscillator" limitations recited in claims 6 and 13 and the ID's infringement findings based on those limitations.

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[2] Respondents withdrew their invalidity defenses against the '336 patent during the evidentiary hearing on June 10, 2013. Final ID at 288 (citing Tr. at 1523-1525). Pursuant to 35 U.S.C. § 282, the ALJ found that the '336 patent is, therefore, presumed to be valid. *Id.*

[3] As noted above, the Commission ordered the ALJ to take evidence and to render findings of fact concerning the public interest in the Notice of Institution. 77 *Fed. Reg.* 51572 (Aug. 24, 2012).

Complainants also requested review of the ID's infringement findings concerning the limitations "varying," "independent," and "asynchronous" recited in claims 6 and 13. Also on September 23, 2013, Respondents filed a contingent petition requesting review of the ID's finding that Complainants have satisfied the domestic industry requirement based on their licensing activities.

On November 25, 2013, the Commission determined to review the final ID in part with respect to the ID's findings concerning claim construction and infringement of claims 6 and 13 of the '336 patent. 78 *Fed. Reg.* at 71644. The Commission also determined to review the ID's finding of domestic industry to consider the question of whether the alleged industry still exists given TPL's relinquishment of its right to license the '336 patent prior to the complaint being filed and to consider whether Complainants have satisfied the economic prong of the domestic industry requirement. *Id.* at 71644-45. The Commission further determined to review the ID's statement that Complainants need not show that at least one of their licensees practices the patent-in-suit to demonstrate a license-based domestic industry. *Id.* at 71644; *see* ID at 296 (Public Ver.) (Oct. 24, 2013). The Notice of Review included briefing questions regarding the certain issues under review. *Id.* at 71644-45.

The Commission determined not to review the remaining issues decided in the final ID, including the ID's finding of no violation with respect to asserted claims 1, 7, 9, 10, 11, and 16 of the '336 patent. *Id.* at 71644. The Commission also determined not to review the ID's finding that Complainants failed to satisfy their burden of proof with respect to infringement of claims 6 and 13 as to the accused chips listed at page 88 of the ID and the products containing

these chips. *Id.*[4]

On December 23, 2013, Complainants, Respondents, and the Commission investigative attorney ("IA") filed initial submissions responding to the Commission's request for briefing. On January 6, 2014, the parties filed reply submissions.

B. Patent at Issue

The '336 patent is entitled "High Performance Microprocessor Having Variable Speed System Clock," and is directed to a microprocessor system having a central processing unit ("CPU") and an oscillator, both formed on the same semiconductor die, where the CPU operates at a variable processing frequency dependent upon the clock speed of the oscillator. The patent is further directed to a microprocessor system which includes an input/output ("I/O") interface, which is independently clocked by a second clock. The '336 patent has 16 claims (following reexamination), of which claims 1, 6, 7, 9-11, and 13-16 were asserted against the respondents. Presently only claims 6 and 13 are still asserted against the active respondents.

Microprocessors must operate over: (1) variable temperature ranges, (2) voltage variations, and (3) variations in semiconductor manufacturing processing ("PVT parameters" for "process," "voltage" and "temperature"), each of which affects operating speed and transistor propagation delays. ID at 7 (citing Technology Stipulation at 2.); '336 patent at 16:44-48. Traditionally, CPUs were designed so that the circuit would function at a rated clock speed that would operate properly in the worst case conditions with respect to the PVT parameters. '336

[4] The Commission also extended the target date for completion of the investigation to January 29, 2014. *Id.* at 71645. On December 19, 2013, the Commission further extended the target date for completion of the investigation to February 19, 2014. Notice (Dec. 19, 2013).

patent at 16:48-53. As a result, prior art circuit designs were clocked a factor of two slower than their maximum theoretical performance. *Id.*

The '336 patent discloses a microprocessor system having: (1) an on-chip variable speed clock and (2) a second independent clock connected to an I/O interface. ID at 7 (citing Technology Stipulation at 2.) The '336 patent discloses a microprocessor having a clock circuit and a CPU fabricated on the same substrate. *Id.*; *see* '336 at 16:57-58. The clock circuit, thus, "tracks the parameters which similarly affect all other transistors on the same silicon die" and allows the CPU to "execute[] at the fastest speed possible[.]" '336 at 16:63-17:10, 17:19-22. The '336 patent specification discloses the following embodiment:

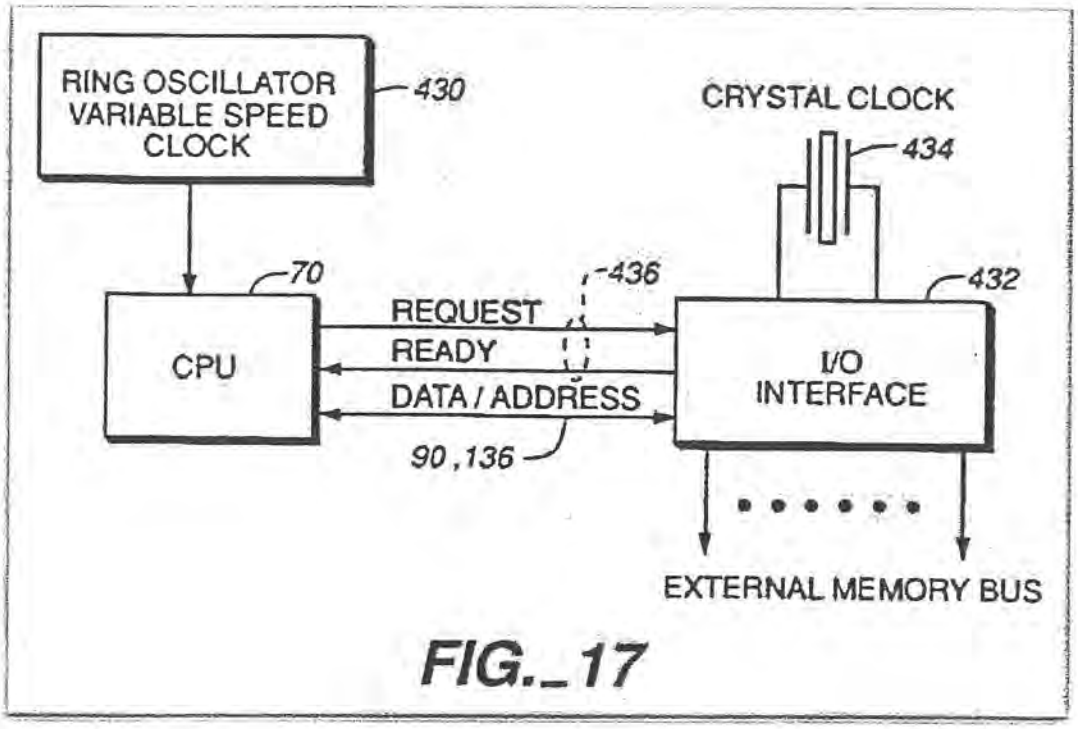

FIG._17

Id. at Fig. 17. In the illustrated embodiment, CPU **70** operates asynchronously with I/O interface **432**. ID at 7 (citing Technology Stipulation at 2.) I/O interface **432** is controlled independently by crystal clock **434**. *Id.* The on-chip ring oscillator variable speed clock **430** clocks the CPU **70**.

Id. Decoupling the variable speed of the CPU **70** from the fixed speed of the I/O interface **432** optimizes the performance of each by allowing the CPU **70** to operate at the maximum frequency dictated by the speed of the on-chip ring oscillator variable speed clock **430**. '336 patent at 17:11-37.

The asserted claims of the '336 patent recite the inventive concept of a CPU and a variable speed clock on the same chip and which vary together due to manufacturing (fabrication) and/or operational (temperature and/or voltage) parameters, where the CPU communicates with an I/O interface, which is clocked using a second clock that is independent of the variable speed clock. The claims variously recite that the first clock comprises a ring oscillator, that the operational parameters include operating temperature or operating voltage of the substrate, and that the second clock is off-chip.

C. Products at Issue

The accused products are, in general, wireless consumer electronics devices. Complainants accuse products identified in Appendix A to the final ID, including desktop personal computers, notebook personal computers, tablet computers, e-readers, navigation devices, smartphones, mobile phones, portable handheld gaming devices, mobile hotspots, USB modems, and wireless home phones (collectively, "Accused Products").[5] ID at 11. The Accused Products included microprocessor chips that are manufactured by Qualcomm, Texas Instruments

[5] The phrase "Accused Products" as used herein does not include the products listed on page 88 of the final ID. The Commission previously determined not to review the ALJ's finding that Complainants have not met their burden of proof concerning infringement for those products. 78 *Fed. Reg.* at 71644; *see* ID at 118-119;

("TI"), Samsung, and LSI. Comp. Pet. at 6. LSI's products are no longer in the investigation.[6]

The Accused Products generally use phase lock loop ("PLL") technology.[7] A PLL, using a phase checker, generally compares a signal from a reference oscillator and a signal from a second oscillator, *e.g.*, a voltage controlled oscillator ("VCO") or current controlled oscillator ("ICO"), and determines whether the two signals are in phase or out of phase. If the second signal is not in phase with the reference signal, the phase checker, using a charge pump, causes the second oscillator to speed up or slow down until the two signals are in phase. The frequency of the VCO/ICO is, therefore, set by the instruction that comes from the phase match element. The output of the VCO/ICO may be used as a clock. The output of the VCO/ICO is also fed back into the phase checker of the PLL as the second signal, thus allowing the PLL to actively adjust the frequency of the VCO/ICO based on the reference signal. Because the frequency of the VCO/ICO may be an order of magnitude higher than the frequency of the reference oscillator, the signal from the VCO/ICO is typically sent through a frequency divider, which divides the frequency such that it is in the same magnitude as the frequency of the reference signal (*e.g.*, gigahertz divided down to megahertz).

II. STANDARD ON REVIEW

Once the Commission determines to review an initial determination, its review is conducted *de novo*. *Certain Polyethylene Terephthalate Yarn and Prods. Containing Same*, Inv.

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[6] Only the Accused Products containing chips manufactured by Qualcomm, TI, and Samsung remain in the investigation. *See* Comp. Review Br. at 4 n. 2.

[7] The summary provided here of this technology is drawn from the technical tutorial given by Respondents' expert, Dr. Subramanian. Tr. at 44-53. We have avoided any discussion in his testimony that is argumentative on behalf of Respondents.

No. 337-TA-457, Comm'n Op. at 9 (June 18, 2002). 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." *Certain Flash Memory Circuits and Prods. Containing Same,* Inv. No. 337-TA-382, USITC Pub. 3046, Comm'n Op. at 9-10 (July 1997) (quoting *Certain Acid-Washed Denim Garments and Accessories,* Inv. No. 337-TA-324, Comm'n Op. at 5 (Nov. 1992)). Commission practice in this regard is consistent with the Administrative Procedure Act. *Certain EPROM, EEPROM, Flash Memory, and Flash Microcontroller Semiconductor Devices and Prods. Containing Same,* Inv. No. 337-TA-395, Comm'n Op. at 6 (Dec. 11, 2000) ("*EPROM*"); *see also* 5 U.S.C. § 557(b).

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 not an appellate court, but is the body responsible for making the final agency decision. On appeal, only the Commission's final decision is at issue. *See EPROM,* Comm'n Op. at 6, citing *Fischer & Porter Co. v. Int'l Trade Comm'n*, 831 F.2d 1574, 1576-77 (Fed. Cir. 1987).

III. ANALYSIS CONCERNING ISSUES THE COMMISSION HAS DETERMINED TO REVIEW

A. Claim Construction

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);

Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*). The language used in a claim bears a "heavy presumption" that it has the ordinary and customary meaning that would be attributed to the words used by persons skilled in the relevant art. *Phillips*, 415 F.3d at 1312-13. To help inform the court of the ordinary meaning of the words, a court may consult the intrinsic evidence, including the claims themselves, the specification, and the prosecution history, as well as extrinsic evidence, such as dictionaries and treatises and inventor and expert testimony. *Id.* at 1314. In particular "the specification 'is always highly relevant to the claims construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Id.* at 1315 (citations omitted).

A court must "take care not to import limitations into the claims from the specification." *Abbott Labs. v. Sandoz, Inc.*, 566 F.3d 1282, 1288 (Fed. Cir. 2009). "When the specification describes a single embodiment to enable the invention, this court will not limit broader claim language to that single application 'unless the patentee has demonstrated a clear intention to limit the claim scope using "words or expressions of manifest exclusion or restriction."'" *Id.* (citations omitted). "By the same token, the claims cannot enlarge what is patented beyond what the inventor has described as the invention. Thus this court may reach a narrower construction, limited to the embodiment(s) disclosed in the specification, when the claims themselves, the specification, or the prosecution history clearly indicate that the invention encompasses no more than that confined structure or method." *Id.* (citations omitted).

"[T]he distinction between using the specification to interpret the meaning of a claim and importing limitations from the specification into the claim can be a difficult one to apply in practice … [h]owever, the line between construing terms and importing limitations can be

discerned with reasonable certainty and predictability if the court's focus remains on understanding how a person of ordinary skill in the art would understand the claim terms." *Phillips*, 415 F.3d at 1323 (citations omitted). In attempting to discern whether a "patentee is setting out specific examples of the invention . . . or whether the patentee instead intends for the claims and the embodiments in the specification to be strictly coextensive . . . [t]he manner in which the patentee uses a term within the specification and claims usually will make the distinction apparent." *Id.*

"[W]here the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender." *Omega Eng'g., Inc. v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed.Cir.2003). "Such a use of the prosecution history ensures that claims are not construed one way in order to obtain their allowance and in a different way against accused infringers." *Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1384 (Fed. Cir. 2005). Disavowal of claim scope made "in the course of prosecuting [a] patent, through arguments made [by the applicant] to distinguish prior art references . . . [must] constitute clear and unmistakable surrenders of subject matter." *Cordis Corp. v. Medtronic Ave,, Inc.*, 511 F.3d 1157, 1177 (Fed. Cir. 2008).

a. Proceedings Before the ALJ

The ALJ construed the disputed claim limitation "an entire oscillator disposed upon said integrated circuit substrate" recited in claims 6 and 13 of the '336 patent to mean "an oscillator that is located entirely on the same substrate as the central processing unit and does not rely on a control signal or an external crystal/clock generator to generate a clock signal." Markman Order

at 40-41; ID at 15.[8] Asserted claims 6 and 13 recite the following, with the disputed limitation highlighted:

Claim 6 of the '336 patent provides:

> 6. A microprocessor system comprising:
> a central processing unit disposed upon an integrated circuit substrate, said central processing unit operating at a processing frequency and being constructed of a first plurality of electronic devices;
> **an entire oscillator disposed upon said integrated circuit substrate** and connected to said central processing unit, said oscillator clocking said central processing unit at a clock rate and being constructed of a second plurality of electronic devices, thus varying the processing frequency of said first plurality of electronic devices and the clock rate of said second plurality of electronic devices in the same way as a function of parameter variation in one or more fabrication or operational parameters associated with said integrated circuit substrate, thereby enabling said processing frequency to track said clock rate in response to said parameter variation; an on-chip input/output interface, connected between said central processing unit and an off-chip external memory bus, for facilitating exchanging coupling control signals, addresses and data with said central processing unit; and
> an off-chip external clock, independent of said oscillator, connected to said input/output interface wherein said off-chip external clock is operative at a frequency independent of a clock frequency of said oscillator and wherein a clock signal from said off-chip external clock originates from a source other than said oscillator.

Claim 13 of the '336 patent provides:

> 13. A microprocessor system comprising: a central processing unit disposed upon an integrated circuit substrate, said central

[8] The ALJ based his construction of the limitation "an entire oscillator disposed upon said integrated circuit substrate" of claims 6 and 13 on his reasoning concerning the construction of the similar limitation "an entire ring oscillator variable speed system clock in said single integrated circuit" of claims 1 and 11. *See* Markman Order at 41. Our analysis of the ID's claim construction will, therefore, also reference his findings for the limitation in claims 1 and 11. *See id.* at 20-40.

processing unit operating at a processing frequency and being constructed of a first plurality of electronic devices;

an entire oscillator disposed upon said integrated circuit substrate and connected to said central processing unit, said oscillator clocking said central processing unit at a clock rate and being constructed of a second plurality of electronic devices, thus varying the processing frequency of said first plurality of electronic devices and the clock rate of said second plurality of electronic devices in the same way as a function of parameter variation in one or more fabrication or operational parameters associated with said integrated circuit substrate, thereby enabling said processing frequency to track said clock rate in response to said parameter variation;

an on-chip input/output interface, connected between said central processing unit and an off-chip external memory bus, for facilitating exchanging coupling control signals, addresses and data with said central processing unit; and

an off-chip external clock, independent of said oscillator, connected to said input/output interface wherein said off-chip external clock is operative at a frequency independent of a clock frequency of said oscillator and further wherein said central processing unit operates asynchronously to said input/output interface.

'336 patent C1 at 2:13-41, 3:29-4:9.

The parties' proposed constructions of the disputed limitation in claims 6 and 13 were as follows:

Claim Term	Respondents	Complainants	IA
"an entire oscillator disposed upon said integrated circuit substrate"	An oscillator that is located entirely on the same semiconductor substrate as the central processing unit and does not rely on a control signal or an external crystal/clock generator to generate a clock signal	An oscillator that is located entirely on the same semiconductor substrate as the central processing unit	An oscillator that includes all components that determine oscillator frequency located on the same semiconductor substrate as the CPU

Markman Order at 40.

Complainants argued during the Markman proceedings that the "entire oscillator" limitation merely requires "a[n] . . . oscillator with circuitry that is entirely integrated in the same semiconductor as the . . . CPU." *Id.* at 20. Complainants asserted that the claim language does not suggest that the claimed "oscillator cannot use a 'control signal' or reference an 'external crystal.'" *Id.* Respondents argued that the patent applicants clearly disavowed reliance on "any off-chip crystals, off-chip clock generators, or control signals" during the initial prosecution of the '336 patent. *Id.* at 21-22. The IA argued that, during prosecution, the patent applicants explicitly amended the claims and presented arguments distinguishing the claims from prior art systems that relied on off-chip components, *e.g.*, an external crystal, or control signals to determine clock frequency. *Id.* at 29-30.

The ALJ rejected Complainants' proposed construction because it did not account for the prosecution history. *Id.* at 38. The ALJ noted that, in distinguishing over U.S. Patent No. 4,503,500 to Magar ("Magar"), the patent applicant specifically argued that "Magar's clock generator 'is not an entire oscillator in itself' because it 'relies on an external crystal connected to terminals X1 and X2 to oscillate.'" *Id.* (citing JXM-16 at TPL853_02954559).[9] The ALJ further noted the patent applicants' assertion that the clock of Magar "is specifically distinguished from the instant case in that it is *both* fixed-frequency (being crystal based) and requires an external crystal or external frequency generator.'" *Id.* (emphasis in original) (citing JXM-16 at TPL853_02954561). The ALJ found that Respondents' proposed construction properly

[9] The citations to the prosecution history in this Opinion refer to the final admitted exhibits, updating the preliminary exhibits citations in the Markman Order.

"expresses the fact that the [oscillator] is a self-contained oscillator and clock which does not utilize external components (as is disclosed in Fig. 18 of the '336 patent)." *Id.* at 39.

The ALJ further found that Respondents' proposed construction captures the patent applicants' distinction over U.S. Patent No. 4,670,837 to Sheets ("Sheets"), where the applicants argued that "'[t]he present invention does not similarly rely upon provision of frequency control information to an external clock[;] . . . Sheets' system for providing clock control signals to an external clock is thus seen to be unrelated to the integral microprocessor/clock system of the present invention.'" *Id.* (citing JXM-17 at TPL853_02954574). The ALJ rejected the IA's proposed construction as being overly broad in requiring that "all components that determine clock frequency" be included in the construction of the limitation "entire oscillator" because "[h]ow literally the word 'determine' is to be applied in the context of the claim is a subject that invites further debate." *Id.*

b. Analysis

The Commission affirms the ALJ's claim construction of the claim limitation "an entire oscillator disposed upon said integrated circuit substrate," and provides additional reasoning in support of this construction. Specifically, while the ALJ's discussion relies exclusively on the prosecution history (*see* Markman Order at 38-41), both the language of claims 6 and 13, as well as the patent specification, further bolster his construction.

With respect to the claim language, the limitation in question cannot be fully understood by reading it in a vacuum without reference to the claim as a whole. Claims 6 and 13 both recite the following:

> **an entire oscillator disposed upon said integrated circuit substrate** and connected to said central processing unit, said oscillator clocking said central processing unit at a clock rate and being constructed of a second plurality of electronic devices, *thus varying the processing frequency* of said first plurality of electronic devices [*i.e.*, the CPU] *and the clock rate* of said second plurality of electronic devices *in the same way* **as a function of parameter variation in one or more fabrication or operational parameters associated with said integrated circuit substrate,** thereby enabling said processing frequency to track said clock rate *in response to said parameter variation*

'336 patent C1, 2:18-30, 3:34-46 (emphasis added). By the plain language of the claims, the "clock rate" of the oscillator and the CPU must "vary in the same way[10] . . . as a function of" the PVT parameters of the chip on which both the oscillator and CPU are situated such that the processing frequency of the CPU tracks the clock rate of the oscillator. Notably, the claim does not recite that the processing frequency and clock rate vary "as a function of . . . *at least* one or more fabrication or operation parameters associated with said integrated circuit substrate[.]" The addition of "at least" in the claim would indicate that the processing frequency and clock rate may vary due to other factors in addition to the fabrication and/or operation parameters. Far from simply requiring that the "entire oscillator" be disposed upon the same chip as the CPU, the plain language of the claim requires that the operating rates of the oscillator and the CPU be allowed to change in response to the chip's PVT parameters as opposed to as the result of some other influence.

The specification of the '336 patent is consistent with this interpretation. The specification explains in detail that the failure of prior art "[t]raditional CPU designs" is that the

[10] Complainants do not challenge the ALJ's construction of the limitation "varying … in the same way" as having its plain and ordinary meaning. *See* Markman Order No. 31 at 68.

chips were deliberately clocked at the slowest speed necessary to accommodate "the worst case of the [PVT] parameters." '336 patent at 16:44-54. By contrast, the microprocessor of the disclosed invention operates such that "[t]he ring oscillator frequency is determined by the [PVT] parameters[.]" *Id.* at 16:59-60. Similarly, all other components on the chip, including the CPU, are affected by the same PVT factors as the oscillator. *Id.* at 16:65-67. The specification teaches using this fact to solve the problem of prior art microprocessors by fabricating the oscillator clock "on the same silicon chip as the rest of the microprocessor **50**" so that all components, including the oscillator and the CPU, are affected by identical PVT factors. 16:57-58. The specification further explains that

> By deriving system timing from the ring oscillator **430**, *CPU **70** will always execute at the maximum frequency possible*, but never too fast. For example, if the processing of a particular die is not good resulting in slow transistors, the latches and gates on the microprocessor **50** will operate slower than normal. Since the microprocessor **50** ring oscillator clock **430** is made from the same transistors on the same die as the latches and gates, it too will operate slower (oscillating at a lower frequency), providing compensation which allows the rest of the chip's logic to operate properly.

Id. at 16:67-17:10 (emphasis added). As with the claim language, the teaching of the specification is antithetical to allowing outside influences to affect the clock rate of the on-chip oscillator, which is how prior art microprocessors operated. Rather, the specification explicitly teaches precisely the opposite, that the use of external sources for timing was inefficient and that the solution is to allow the clock rate of the oscillator to vary solely due to the same parameters that are affecting the operational efficiency of the remainder of the on-chip components, *e.g.*, the CPU. As such, the specification of the '336 patent does not allow for the on-chip oscillator to be

influenced by some outside source, *e.g.* an external crystal such as is used in a PLL, which, by definition, isolates the clock rate of the on-chip oscillator from the effects of the chip's PVT parameters.

With respect to the prosecution history, Complainants argue that the prior art references cited by the USPTO examiner—Magar and Sheets—lacked any on-chip oscillator, and that the patent applicants did not disclaim[] any use of a control signal or an external crystal/clock generator to generate a clock signal. A close reading of the prosecution history, however, shows that Complainants are mistaken.

The examiner initially rejected certain claims of the patent application as obvious over Sheets. JXM-17 ('336 prosecution history, Apr. 11, 1996 amendment). Specifically, the examiner noted that "Sheets teaches a microprocessor system having a microprocessor and a variable speed clock generator[,]" contending that, although Sheets does not teach that the "clock is implemented using a ring oscillator . . . 'a counter is a basis component of [a] clock generator.'" *Id.* at TPL853 02954573. In response, the applicants contended that Sheets teaches "the use of discrete, commercially available microprocessor chips . . . driven by a separate clock (VCO **12** of FIG. 1)" and further teaches "a technique for adjusting the frequency of VCO **12** in accordance with a desired operating frequency of the microprocessor **101**." *Id.* at TPL853 02954574. The applicants noted that "[s]pecifically, a digital word indicative of this desired operating frequency is written by microprocessor **101** to VCO **12** by way of data bus **104** as a means of adjusting the clock frequency." *Id.* The applicants contrasted the microprocessor disclosed in Sheets with the microprocessor taught by the patent application, arguing that:

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> The present invention does not similarly rely upon provision of frequency control information to an external clock, but instead contemplates providing a ring oscillator clock and the microprocessor within the same integrated circuit. The placement of these elements within the same integrated circuit obviates the need for provision of the type of frequency control information described by Sheets, since *the microprocessor and clock will naturally tend to vary commensurately in speed as a function of various parameters (e.g., temperature) affecting circuit performance.* Sheets' system for providing clock control signals to an external clock is thus seen to be unrelated to the integral microprocessor/clock system of the present invention.

Id. (emphasis added). The applicants further noted the rejected claims were amended to explicitly recite that the "ring oscillator and microprocessor are provided within the same integrated circuit" and that the transistors that comprise the ring oscillator clock "have operating characteristics which *vary similarly* to operating characteristics of transistors included within the microprocessor, *thereby enabling the processing frequency of the microprocessor to track the speed of the ring oscillator clock*[.]" *Id.* (emphasis added). The applicants argued that, in contrast, the "VCO **12** [of Sheets] . . . clearly is not adapted to mimic variation in the speed of transistors within the microprocessor **101**." *Id.* at TPL853 029545745.

Although Sheets does teach "provid[ing] 'control information' – in the form of a 'digital word' – to an external clock," in traversing the rejection over Sheets, the applicants clearly argued that, unlike the invention claimed in the patent application, Sheets not only fails to disclose an on-chip clock, but also fails to disclose a clock that "is [] adapted to mimic variation in the speed of" the CPU "*as a function of various parameters (e.g., temperature) affecting circuit performance.*" Based on this amendment, the patent applicants indicated that the invention recited in the claims of the patent application requires that the CPU "track the speed"

of the on-chip clock due to the operating parameters of the chip, not merely that the clock must be on the same chip as the CPU.

The patent applicants subsequently clarified the novel aspect of the invention in an amendment submitted in response to a telephone interview between the patent examiner and the applicants' counsel, during which counsel further discussed the distinction of the invention over Sheets. JXM-21 ('336 prosecution history, Jan. 13, 1997 amendment). In the amendment, the applicants noted that:

> In the interview, the fact that operating characteristics of electronic devices in an integrated circuit will track one another *depending on variations in the manufacturing process used to make the integrated circuit* was discussed. . . . This fact is utilized in the present invention to provide a variable speed clock for the microprocessor, with the clock speed varying in the same way as variations in the operating characteristics of the electronic devices making up the microprocessor. *This allows the microprocessor to operate at its fastest safe operating speed, given its manufacturing process or changes in its operating temperature or voltage. In contrast, prior art microprocessor systems are given a rated speed based on possible worst case operating conditions and an external clock is used to drive them no faster than the rated speed.* Under other than worst case operating conditions, the prior art microprocessors are actually capable of operating at a faster clock speed than their rated speed.
>
> . . .
>
> Even if the Examiner is correct that the variable clock in Sheets is in the same integrated circuit as the microprocessor of system **100**, that still does not give the claimed subject matter. In Sheets, a command input is required to change the clock speed. *In the present invention, the clock speed varies correspondingly to variations in operating parameters of the electronic devices of the microprocessor because both the variable speed clock and the microprocessor are fabricated together in the same integrated circuit. No command input is necessary to change the clock frequency.*

Id. at TPL853_00002448-49 (emphasis added). Based on this later filing, it is clear that the

patent applicants explicitly disclaimed the use of command signals to adjust the clock rate of the on-chip oscillator.

The patent examiner next rejected certain claims of the patent application as obvious over Magar in view of Pelgrom. JXM-19 ('336 prosecution history, Apr. 3, 1997 office action). The examiner relied on Figure 1 of Magar as disclosing "a data processing system having a single chip microcomputer **10** and an I/O interface **12[,]**" and the examiner relied on Figure 2a of Magar to show "that the microprocessor includes [a] clock generator and a CPU[.]" *Id.* at TPL853_00002434. The examiner further relied on Pelgrom's teaching that "electronic components would exhibit [the] same characteristics if they are manufactured by the same process technology" to conclude that "it would have been obvious, from the teaching of Pelgrom, to a person of ordinary skill in the art to have the components of Magar'[s] microprocessor and clock (oscillator) [made] of the same process for ensuring processing frequency of the CPU to track [*sic*] the clock rate in response to the parameter variations." *Id.*

In overcoming the rejection, the patent applicants distinguished between the "conventional crystal clock" disclosed in Magar and the "variable speed clock" of the invention, describing the difference as "a primary point of departure from the prior art[.]" JXM-18 ('336 prosecution history, July 7, 1997 amendment) at TPL853_00002427. The applicants went on to explain that:

> Contrary to the Examiner's assertion in the rejection that "one of ordinary skill in the art should readily recognize that the speed of the CPU and the clock vary together due to manufacturing variation, operating voltage and temperature of the IC", [*sic*] *one of ordinary skill in the art should readily recognize that the speed of the CPU and the clock do not vary together due to manufacturing variation, operating voltage and temperature of the IC in the*

> *Magar microprocessor, as taught in the above quotation from the reference. This is simply because the Magar microprocessor clock is frequency controlled by a crystal which is also external to the microprocessor. Crystals are by design fixed-frequency devices whose oscillation speed is designed to be tightly controlled and to vary minimally due to variations in manufacturing, operating voltage and temperature. The Magar microprocessor in no way contemplates a variable speed clock as claimed.*
>
> ...
>
> The present invention is unique in that it applies, and can only apply, in the circumstance where the oscillator or variable speed clock is fabricated on the same substrate as the driven device. The example given is a non-crystal controlled circuit, a ring oscillator. *A ring oscillator will oscillate at a frequency determined by its fabrication and design and the operating environment.* Thus in this example, the user designs the ring oscillator (clock) to oscillate at a frequency appropriate for the driven device when both the oscillator and the device are under specified fabrication and environmental parameters. *Crucial to the present invention is that since both the oscillator or variable speed clock and [the] driven device are on the same substrate, when the fabrication and environmental parameters vary, the oscillation or clock frequency and the frequency capability of the driven device will automatically vary together.* This differs from all cited references in that the oscillator or variable speed clock and the driven device are on the same substrate, and that *the oscillator or variable speed clock varies in frequency but does not require manual or programmed inputs or external or extra components to do so.*

Id. at TPL853_00002427-28 (emphasis added). The patent applicants specifically distinguished the present invention from Magar and other similar prior art microprocessors which "operate at a frequency determined by [an] external crystal." *Id.* at TPL853_00002428.

Finally, in responding to yet another rejection over Magar and Pelgrom, the patent applicants submitted an additional response, in which the claims were amended to clarify that the claimed oscillator is on-chip. JXM-16 ('336 prosecution history, Feb. 10, 1998 amendment) at TPL853 02954559. In further distinguishing the invention over Magar, the patent applicants

stated that:

> Magar's clock generator relies on an external crystal connected to terminals Xl and X2 to oscillate, as is conventional in microprocessor designs. It is not an entire oscillator in itself. *And with the crystal, the clock rate generated is also conventional in that it is at a fixed, not a variable, frequency. The Magar clock is comparable in operation to the conventional crystal clock* ***434*** *depicted in Fig. 17 of the present application for controlling the I/O interface at a fixed rate frequency, and not at all like the clock on which the claims are based*, as has been previously stated.
>
> ...
>
> The signals PHASE 0, PHASE 1, PHASE 2, and PHASE 3 in Applicant's Fig 18 are synonymous with Ql, Q2, Q3, and Q4 depicted in Magar Fig. 2a. *The essential difference* is that the frequency or rate of the PHASE 0, PHASE 1, PHASE 2, and PHASE 3 signals *is determined by the processing and/or operating parameters of the integrated circuit* containing the Fig. 18 circuit, while the frequency or rate of the Ql, Q2, Q3, and Q4 signals depicted in Magar Fig. 2a are *determined by the fixed frequency of the external crystal connected to the circuit* portion outputting the Ql, Q2, Q3, and Q4 signals shown in Magar Fig. 2a.
>
> The Magar teaching is well known in the art as a conventional crystal controlled oscillator. *It is specifically distinguished from the instant case in that it is* ***both*** *fixed-frequency (being crystal based)* ***and*** *requires an external crystal or external frequency generator.*

Id. at TPL853 02954559-61 (emphasis added). The patent applicants' statement in the final sentence quoted above, in particular, shows that the applicants intended to disclaim, not only an external crystal/frequency generator, but ***also*** a fixed-frequency, crystal controlled oscillator. Thus, the "entire oscillator" limitation requires both that the circuitry required to generate and/or determine (or adjust) the frequency of the oscillator's clock rate must be entirely on-chip.

The Commission, therefore, affirms the ALJ's construction of the limitation "entire oscillator" in claims 6 and 13 of the '336 patent to mean: "an oscillator that is located entirely on

the same substrate as the central processing unit and does not rely on a control signal or an external crystal/clock generator to generate a clock signal" with the elaboration discussed above.

B. Direct Infringement

The unfair acts covered under section 337 include "all forms of infringement, including direct, contributory, and induced infringement." *Certain Home Vacuum Packaging Machines*, Inv. No. 337-TA-496, Order No. 44, 2004 ITC LEXIS 202 * 2, n.2 (Mar. 3, 2004); *see Spansion, Inc. v. Int'7 Trade Comm'n,* 629 F.3d 1331, 1355 (Fed. Cir. 2010) (affirming Commission's finding of a violation of section 337 based on contributory infringement); *see also Kyocera Wireless Corp. v. Int'l Trade Comm'n,* 545 F.3d 1340 (Fed. Cir. 2008) (ruling on the merits of the Commission's finding that respondent had violated section 337 based on induced infringement).[11] To establish infringement, there must be a preponderance of evidence. *See Kao Corp. v. Unilever United States, Inc.*, 441 F.3d 963 (Fed. Cir. 2006). A determination of patent infringement encompasses a two-step analysis. *Advanced Cardiovascular Sys., Inc. v. Scimed Life Sys., Inc.*, 261 F.3d 1329, 1336 (Fed. Cir. 2001) ("*Scimed*"). First, the court determines the scope and meaning of the patent claims asserted, and then the properly construed claims are compared to the allegedly infringing device. *Id.* "Literal infringement of a claim exists when each of the claim limitations reads on, or in other words is found in, the accused device." *Allen Eng. Corp. v. Bartell Indus.*, 299 F.3d 1336, 1345 (Fed. Cir. 2002). Under the doctrine of equivalents, "a product or process that does not literally infringe upon the express terms of a

[11] The U.S. Court of Appeals for the Federal Circuit recently addressed under what circumstances a section 337 violation may be based on induced infringement. *Suprema v. Int'l Trade Comm'n*, No. 12-1170, 2013 WL 6510929, at *5-12 (Fed. Cir. 2013).

patent claim may nonetheless be found to infringe if there is equivalence between the elements of the accused product or process and the claimed elements of the patented invention." *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997).

Direct infringement includes the making, using, selling, offering for sale and importing into the United States an infringing product, without authority. 35 U.S.C. § 271(a). To prove direct infringement, the plaintiff must establish by a preponderance of the evidence that one or more claims of the patent read on the accused device either literally or under the doctrine of equivalents. *Scimed*, 261 F.3d at 1336.

The ID finds that the Accused Products do not directly infringe the asserted claims of the '336 patent. ID at 17-275. In particular, the ALJ found that Complainants failed to provide any evidence concerning infringement under the doctrine of equivalents. ID at 275. Complainants did not challenge this finding. In addition, the ALJ found that Complainants failed to present sufficient evidence to show that the TI audio codecs found in the accused Nintendo products include a CPU, as required by asserted claims 6 and 13. *Id.* at 270-275. Complainants did not contest this finding.

Furthermore, the ID finds that Complainants failed to present sufficient evidence to show that any of the products listed in Attachments B and C of Respondents' post-hearing brief infringes any asserted claim of the ' 336 patent. *Id.* at 284-287. Specifically, the ALJ found that "[t]o the extent those [listed] products overlap with the Accused Products as defined above, the [ALJ] finds that those products do not infringe the asserted claims of the '336 patent[.]" *Id.* at 287. Complainants did not contest this finding. The ID also finds that that there is insufficient support in the record to determine whether the accused [ ] chips listed at page 88 of the

ID contain an oscillator as required by claims 6 and 13 of the '336 patent. ID at 118-119. The Commission determined not to review this finding. 78 *Fed. Reg.* at 71644.

This Opinion, therefore, address only the following issues regarding direct infringement: (1) the ID's finding that the Accused Products do not satisfy the "entire oscillator" limitation of claims 6 and 13, focusing in particular on the use of "current-starved" technology [ ]; (2) the ID's finding that the Accused Products do not satisfy the "varying" limitations of claims 6 and 13; and (3) the ID's findings concerning the "external clock" limitations.

1. "Entire Oscillator"

a. Proceedings Before the ALJ

Based on his construction the limitation "an entire oscillator disposed upon said integrated circuit substrate" recited in claims 6 and 13 to mean "an oscillator that is located entirely on the same substrate as the central processing unit and does not rely on a control signal or an external crystal/clock generator to generate a clock signal" (Markman Order at 40-41), the ALJ found that the Accused Products do not satisfy the "entire oscillator" limitations of the asserted claims. ID at 118-132.

Specifically, the ALJ found that Respondents' expert, Dr. Subramanian, and TI's corporate witnesses, Mr. Haroun and Mr. Kekre, "all testified that the PLLs in the Accused Products require, and thus rely on, a control signal to determine the generated clock frequency signal." *Id.* at 119. The ALJ further noted that Complainants' expert, Dr. Oklobdzija, "affirm[ed] that a PLL has circuitry that is used to set the frequency of a VCO to a multiple of another oscillator frequency functioning as a reference clock." *Id.*

The ALJ also noted that, in the textbook co-authored by Dr. Oklobdzija, a section of the

book concerning clock generation states that "the VCO generates the internal clock by virtue of a control voltage created in response to the external reference." *Id.* at 120 (citing RX-2283 at GARMIN 92907). The ALJ found that "this process includes more than simply delivering sufficient power to enable the oscillator to oscillate." *Id.* at 121. Rather, "[t]he clock signal that is generated is a product of a control signal provided by the PLL and the reference frequency of the external crystal/clock." *Id.* The ALJ concluded that "the processes of setting the frequency of a clock signal and generating a clock signal are inseparable, because a clock signal must have a frequency, since its sole purpose is to provide a frequency for timing the operations of devices." *Id.* The ALJ further found that "[t]he external reference signal is integral to the generation of a clock signal, and by acknowledging that the PLL sets the frequency of the VCO in reaction to a reference clock signal from an external crystal or clock generator, Dr. Oklobdzija concedes that the PLL and its components rely on an external crystal/clock to generate a clock signal." *Id.* at 121-122. The ALJ, therefore, found that none of the Accused Products satisfy the "entire oscillator" limitations of the asserted claims. *Id.* at 122.

The ALJ rejected Complainants' argument that the Accused Products infringe even though they use an external crystal/clock generator to set or adjust the frequency of a clock signal. *Id.* at 122-124. Accordingly, the ALJ found that the oscillators in the Accused Products rely on control signals from within the PLL and on an external crystal/clock generator to generate a clock signal. *Id.* at 124. In particular, Respondents argued that "for the PLLs whose structures are known, the ring oscillators used in the VCO or ICO, as the case may be, cannot operate without a control signal from other PLL circuitry" and that "*all* of the ring oscillators use [ ] and therefore require and rely on control signals from other PLL

circuitry to operate." ID at 69 (emphasis added); *see also id.* at 69-73 (Respondents discussion of the so-called [ ] in the accused [ ]. The ALJ found that the so-called [ ] in the Accused Products operate only [ ] and that "[w]ithout those control signals [ ], 'oscillation unequivocally stops.'" *Id.* at 125 (citing Subramanian Tr., 1502-03).

The ALJ, however, addressed only the "current-starved" technology used in the accused [ ] chips and did not analyze the accused [ ] chips. *See* ID at 125-132. The Commission, therefore, determined to review the ID's findings concerning the "entire oscillator" limitation and posed the following question in the Notice of Review:

> With respect to the Accused Products using so-called "current-starved technology," specifically identify which accused chips are implicated, cite to the relevant evidence in the record, and discuss whether those products satisfy the "entire oscillator" limitation of claims 6 and 13 of the '336 patent.

78 *Fed. Reg.* at 71644.

b. Analysis

The parties agree that all of the [ ] chips in the Accused Products use "current-starved" technology. The parties also clarified in their submissions on review that the accused LSI chips only concerned terminated respondent Acer and are, therefore, no longer a part of the investigation. *See* 78 *Fed. Reg.* at 4 (terminating Acer). The primary dispute concerning the "entire oscillator" limitation comes down to how broadly the ALJ's construction of that limitation can be fairly read. Specifically, in responding to the Commission's request for briefing concerning the "entire oscillator" limitation, Complainants

again argue (as they did before the ALJ) that the ring oscillators [ ] as long as they have a power supply, emphasizing the alleged difference between the PLLs in the Accused Products using an external crystal to set the frequency of the controlled oscillators and using an external crystal to generate the clock signal of the controlled oscillators.

We find that the ALJ's application of his construction of the "entire oscillator" limitation to the Accused Products was correct, including in particular his discussion of the intricate relationship between the generation and frequency of a clock signal. ID at 119-122. Specifically, the basis of the ALJ's finding concerning the reliance of the oscillators in the Accused Products on an "external crystal/clock generator" is that a "PLL controls the frequency of [a] VCO or ICO and adjusts it to match the reference frequency" and that "a PLL has circuitry that is used to set the frequency of a VCO to a multiple of another oscillator frequency functioning as a reference clock." ID at 119 (citing Oklobdzija Tr., 831, 824). The ALJ noted that Dr. Oklobdzija and his fellow authors concluded in a graduate-level textbook that, in a PLL, "the VCO generates the internal clock by virtue of a control voltage created in response to the external reference." *Id.* at 120. The ALJ found that "this process includes more than simply delivering sufficient power to enable the oscillator to oscillate[.]" *Id.* at 121. Furthermore, the ALJ found that "the process of setting the frequency of a clock signal and generating a clock signal are inseparable, because a clock signal must have a frequency, since it sole purpose is to provide a frequency for timing the operations of devices." *Id.* We affirm the ALJ's finding and analysis.

With respect to the use of "control signals," the ALJ found that "there are control signals within the PLLs themselves that are used to control the oscillation of the oscillators." *Id.* at 122

(citing Subramanian, Tr., 1316-32), 124.[12] The ALJ found that, in the [ ] shown in RX-621C, [ ]. *Id.* at 125.[13] In particular, he found that, even when [

]. *Id.* at 125-127 (citing Subramanian Tr., 1502-05). He also found that, contrary to Complainants' assertions, the [ ] shown in RX-621C [

]. ID at 128-129.

In finding that the [ ], the ALJ credited Dr. Subramanian's testimony that, according to the graph illustrated in Figure 2-11 (RX-621C at [

]. *Id.* at 130-131 (citing Subramanian Tr., 1454-1455). The ALJ disagreed with Complainants' argument that the graph at Figure 2-11 shows that the [

]. *Id.* Complainants' arguments provide no reasoned basis to disturb the ALJ's reliance on Dr. Subramanian's testimony.

Although the ALJ doesn't explicitly address the issue, we note that his analysis regarding the [ ] shown in RX-621C applies equally to the configuration of the same

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[12] The ID mistakenly cites Subramanian's testimony at beginning at 1306 instead of 1316.

[13] Respondents assert that [ ] use a [ ] and exhibit the same behavior as the [ ]. As such, we reject Respondents assertion in their reply submission that the [ ] is not representative of at least the [ ].

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[ ] shown in Figures RDX-4.118C and 4.129C. *See* ID at 31-35. As with [ ] shown in RX-621C, the chip in RDX-4.129C provides [

] *See* Subramanian Tr., 1448:25-1449:10 (discussing [ ]). As such, [

] (*e.g.*, [ ] in RX-621C or [ ] in RDX-4.129C) cannot satisfy the requirements of claims 6 and 13 that the "entire oscillator" be "clocking said [CPU] at a clock rate." 336 patent at 2:18-21, 3:35-4-37. The ALJ correctly found that the Accused Products containing Qualcomm chips use a control signal to generate a clock signal and adopt the ALJ's finding of no infringement on this point.

With respect to the accused TI OMAP chips, we note that Complainants make no specific allegations regarding these chips in their review submissions, instead focusing their discussion entirely on the accused Qualcomm chips. The ALJ found that the accused TI OMAP chips also require a control signal. ID at 131. Specifically, the ALJ relied on the testimony of TI's corporate witness, Mr. Haroun, that the [

]. Furthermore, Mr. Haroun stated that [

].

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The ALJ also relied on Mr. Haroun's testimony that [

]. The ALJ noted that Dr. Subramanian testified consistently. *Id.* at 131-132 (citing Subramanian Tr., 1186-89, 1319-20). Based on the ALJ's analysis, we agree that the ALJ correctly found that the Accused Products containing TI OMAP chips use a control signal to generate a clock signal and adopt the ALJ's finding of no infringement on this point.

With respect to the accused Samsung chips, the ID offers no analysis to support the ALJ's blanket finding that none of the oscillators in the Accused Products satisfy the "entire oscillator" limitation. *See* ID at 132. This is, however, not surprising considering Complainants made no specific arguments before the ALJ concerning the Samsung chips except to assert that they all use PLLs having VCOs that are ring oscillators. ID at 22. In their review submission, Complainants note only that the oscillators in the accused Samsung chips [ ] such that [ ]. The applied current, however, is the precise "control signal" that takes the Accused Products out of the scope of the "entire oscillator" limitation. We, therefore, affirm the ALJ's finding of no infringement with respect to the Samsung chips.

Respondents also provide specific evidence concerning the Samsung chips, which Complainants do not rebut. Specifically, Dr. Subramanian describes the accused Samsung PLLs as [

] *See* Subramanian Tr., 1198:14-1199:5, 1200:15-23; JX37C

at 853Samsung 170096-97 [ ]; *see also* Oklobdzija Tr., 988:18-989:15 [ ]. Respondents further note that exhibit JX-37C shows that [ ] *Id.* (citing Subramanian Tr., 1199:6-13; JX37C at 853Samsung 170096-97). Based on this evidence, we find that the Accused Products containing Samsung chips use control signals to generate a clock signal and, therefore, do not infringe the "entire oscillator" limitation.

Based on the preceding discussion, the Commission affirms the ALJ's finding that the Qualcomm, TI OMAP, and Samsung chips in the Accused Products do not satisfy the "entire oscillator" limitation due to the fact that all of the accused chips use PLLs having [ ].

2. "Varying . . . in the Same Way"

a. Proceedings Before the ALJ

The ALJ found that the limitation "varying the processing frequency of said first plurality of electronic devices and the clock rate of said second plurality of electronic devices in the same way" of claims 6 and 13 requires no construction and would have been understood by a person of ordinary skill in the art at the time of the invention according to its plain and ordinary meaning." Markman Order No. 31 at 68; *see* ID at 16. Based on this claim construction, the ID finds that the Accused Products do not satisfy the "varying … in the same way" limitations of the asserted claims. ID at 189-213. No party petitioned for review of this construction.

With respect to infringement, the ALJ found, as an initial matter, that Complainants

failed to "perform any testing and did not produce any empirical evidence of their own, despite the fact that Dr. Oklobdzija . . . thought it appropriate and desirable to do so." *Id.* at 190. While the ALJ did not find that Complainants' failure was fatal to its infringement case, he noted that "under the particular facts and circumstances of this case, the weight of the evidence is affected by the presence or absence, as the case may be, of evidence of that caliber." *Id.* at 192, n. 19. The ALJ concluded that the Accused Products, which use PLLs, do not infringe because "a PLL outputs a very stable and fixed frequency," as shown by the results of Dr. Subramanian's tests. *Id.* at 182-193.

The ALJ took particular note of Complainants' argument that the processing frequency of the CPU will always track the "entire" oscillator's clock rate because the oscillator's clock rate is what clocks the CPU. *Id.* at 193-194. The ALJ found that Complainants reasoning is flawed because "it avoids the fact that the 'entire' oscillator terms are inextricably tied to the 'varying' term of the claims." *Id.* at 194 (citing Markman Order No. 31 at 42). The ALJ found that "the evidence shows that none of the Accused Products meet any of the 'entire' limitations of the asserted claims[] because the frequencies of the oscillators in the Accused Products are fixed by external crystals/clock generators as well as internally by the PLLs." *Id.* at 194. The ALJ rejected Dr. Oklobdzija's testimony about infringement of the "varying" terms as improperly divorced from the effects of external crystals and their associated PLLs. *Id.* at 194-195. By contrast, the ALJ found that Dr. Subramanian properly "took into account the 'entire' terms, as construed, in addressing the 'varying' limitations and that the testing he described and the data

obtained therefrom are reliable and support his opinion" of non-infringement. *Id.* at 196.[14] Complainants did not challenge the ALJ's findings concerning the results of Dr. Subramanian's testing in their petition for review.

Complainants further asserted that the chip manufacturing industry "engages in a common practice called 'binning'" to account for the varying performance levels of chips due to the manufacturing process, and that this procedure satisfies the "varying" limitations of claims 6 and 13. *Id.* at 143-144.. *Id.* at 143-144. The ALJ found that "while binning is a reflection that variations exist in the performance capabilities of microprocessors . . . this does not constitute evidence that any of the Accused Products meet the 'varying' limitations of the asserted claims." *Id.* at 209. Specifically, the ALJ concluded that "Dr. Subramanian's testimony and the testing it was based on empirically demonstrate that the operation frequencies of the chips, no matter their individual differences[,] are fixed." *Id.* (citing Subramanian Tr., 1265-66).

Complainants argued in their petition for review that the ALJ failed to take into account the specific language of asserted claims 6 and 13 and consider whether the CPU and clock rate of the oscillator vary in the same way due strictly to their fabrication process, as opposed to operational parameters. Complainants contended that the fact that the chips in the Accused Products are subjected to "binning" proves that processing frequency of the CPU in the Accused Products will always vary with the clock rate of the on-chip oscillator as a function of the fabrication parameters that were fixed in the chip at the factory.

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[14] The ALJ made detailed findings concerning Dr. Subramanian's testing at pages 196-204 of the final ID.

b. Analysis

Claims 6 and 13 recite two different "varying" limitations: "varying . . . as a function of" and "varying . . . in the same way."[15] Complainants' arguments concern only the former phrase. We, therefore, focus our analysis on the question of whether the Accused Products satisfy the requirement of claims 6 and 13 that the "processing frequency" of the CPU and the "clock rate" of the on-chip oscillator must "vary . . . as a function of parameter variation in one or more fabrication or operational parameters associated with [the] integrated circuit substrate[.]" *See* '366 patent at 2:22-28, 3:38-45. We also note that Complainants did not argue in their petition for review that the Accused Products infringe claims 6 and 13 due to the effects of any operational parameters, *i.e.* operating temperature and operative voltage, instead focusing solely on whether the Accuse Products infringe due to the effects of fabrication parameter variations and, as a result, the concept of "binning." We find, therefore, that Complainants have abandoned any argument concerning operational parameters. *See* 19 C.F.R. § 210.43(b)(2) ("Any issue not raised in a petition for review will be deemed to have been abandoned by the petitioning party and may be disregarded by the Commission in reviewing the initial determination (unless the Commission chooses to review the issue on its own initiative under § 210.44)).

Furthermore, we disagree with Complainants regarding the significance of the binning process. The binning process merely sorts individual chips based on the maximum processing frequency at which a chip is capable of operating and has nothing to do with the actual frequency and clock rate at which a chip operates. *See* Subramanian Tr., 1264:5-1265:10, 1264:19-1265:18;

[15] The parties requested construction only of the limitation "varying . . . in the same way." Markman Order at 57-68.

1271:21-25). Complainants' expert confirmed our understanding on this point. *See* Oklobdzija Tr., 1030:18-21; *see also id.* 300:20-21 (emphasis in original) ("So we'll sell [the chips] out according to their *ability* to run."). Claims 6 and 13, on the other hand, require variation in the chip's "processing frequency," or the frequency at which the chip operates, not variation in the chip's maximum processing frequency capability. This distinction is made evident by comparing the phrase "processing frequency" in claims 6 and 13 with the phrase "processing frequency capability" in claims 1 and 11 of the '336 patent.

The ID properly recognizes this distinction, finding that "[b]y conflating these two distinctly-claimed elements, Dr. Oklobdzija disregards an important fact about the accused chips and products: by design, a PLL compensates for any PVT-related effects in order to maintain a stable and fixed frequency." *Id.* at 210 (citing Subramanian Tr., 1273; RDX-4C.111)). The ALJ noted in particular the testimony of Respondents' expert, Dr. Subramanian, that "while PVT affects the maximum operating capability of a transistor, the PLL and its components are not running at this maximum capability, and this allows them to provide a fixed output frequency[.]" *Id.* at 210-11 (citing Subramanian Tr., 1295). The ALJ concluded that "a part's processing frequency capability may change with PVT, but its actual speed, or processing frequency, remains constant. . . .While oscillators in the PLLs of the Accused Products are capable of variable frequencies in response to PVT factors, nevertheless, they are constrained to provide fixed clocking signals to the CPU[.]" *Id.* at 211. We agree with the ALJ's conclusion that the "maximum achievable performance" (*see* Subramanian Tr., 1122:1-1123:7) which is affected by the fabrication process is different from the actual "processing frequency" at which a chip operates at a given time. The "processing frequency" of the Accused Products during operation

is precisely what must "vary[] . . . as a function of parameter variation" in order to satisfy claims 6 and 13.

Dr. Subramanian's empirical tests do not directly address the issue of whether accused chips that were sorted differently according to the "binning" process do, in fact, operate differently in terms of frequency. Nevertheless, the fact that his tests showed how the PLL maintains a fixed frequency of operation regardless of variations in temperature and voltage is easily extrapolated to conclude that the PLL similarly affects chips that may be assigned different operating capabilities during "binning," *i.e.*, maintains them at a fixed operating frequency. *See* ID at 193. We further note that Complainants did not present any empirical evidence to support their position or to rebut Dr. Subramanian's test results.

We also reject Complainants' argument that the ALJ ignored the disjunctive nature of the claim limitation, which recites that the oscillator clock signal and the CPU processing frequency vary "as a function of parameter variation in one *or* more fabrication or operational parameters." '336 patent at 2:22-28, 3:38-44 (emphasis added). Rather, the ALJ correctly noted that, because the Accused Products use PLLs, there is no variation in their processing frequency due to ***any*** parameter, be it fabrication or operational-based. *See* ID at 210-211 (discussing the effect of a PLL on the processing frequency of a transistor).[16]

In addressing the Commission's question concerning "current-starved" oscillators, Complainants present an entirely new argument regarding why the [

[16] The specification of the '336 patent describes how the fabrication ("processing") of a chip can affect the operating speed of the chip if allowed and not merely affect the maximum speed capability of the chip. *See* '336 patent at 17:2-10.

] satisfy the "entire oscillator" limitation of claims 6 and 13. Specifically, Complainants now argue that the [ ] is an "operational parameter." In making this argument, Complainants necessarily implicate the "varying" limitation. We again note that Complainants did not challenge the ID's findings that the Accused Products do not satisfy the "varying" limitations with respect to "operational parameters" in their petition for review, instead focusing solely on the "fabrication parameters." As stated above, we find that Complainants have, thus, abandoned any argument that the Accused Products infringe claims 6 and 13 due to the effects of "operational parameters." Nevertheless, Complainants' arguments are also incorrect on the merits.

In arguing that the [

] is, in fact, one of the "operational parameters" recited in the asserted claims and not a forbidden "control signal," Complainants attempt to draw a distinction based on the doctrine of claim differentiation between the term "operational parameters" in claims 6 and 13 and the specific recitation of the terms "temperature" and "voltage" as a type of operational parameter in dependent claims 7 and 14. Specifically, Complainants argue that the term "operational parameters" as used in claims 6 and 13 must be broader and encompass other operational parameters beyond temperature and voltage. In particular, Complainants advocate for extending "operational parameters" to include current as well as voltage. Complainants assert that, because the oscillator clocks the CPU, the "clock rate" of the "entire oscillator" will *always* "vary . . . in the same way" as the "processing frequency" of the CPU in the accused chips by definition. Complainants contend that, as a result, the clock rate of the oscillator and, consequently, the processing frequency of the CPU vary "as a function of parameter variation" in

the [ ]. Complainants conclude that, because the [ ] is an "operational parameter," it cannot have been disclaimed despite the limitation in the claim construction of "entire oscillator" of not relying on "control signals" to "generate a clock signal."

Respondents argue that Complainants waived this novel argument by never before presenting the concept of a bias current being an "operational parameter." We agree. *See Hazani v. Int'l Trade Comm'n*, 126 F.3d 1473, 1479 (Fed. Cir. 1997) (finding argument not raised before the ALJ waived); *Broadcom Corp. v. Int'l Trade Comm'n*, 542 F.3d 894, 900-1 (Fed. Cir. 2008) (declining to address arguments not raised before the ALJ or the Commission).

Moreover, the ALJ explicitly found that the frequency of the oscillators in the Accused Products do not vary as a function of PVT parameters. *Id.* at 3 (citing ID at 192-204 (discussing Dr. Subramanian's empirical testing of the accused chips)). Rather, the ALJ found that the very function of the PLLs in the accused chips is to maintain the oscillators in those chips at a constant, un-varying frequency as a function of the frequency of an external crystal oscillator. ID at 119 (noting Dr. Oklobdzija testimony that "'the PLL controls the frequency of that VCO or ICO and adjusts it to match the reference frequency.'"); *id.* at 121-122 ("[B]y acknowledging that the PLL sets the frequency of the VCO in reaction to a reference clock signal from an external crystal or clock generator, Dr. Oklobdzija concedes that the PLL and its components rely on an external crystal/clock to generate a clock signal."). The ALJ specifically noted that "the 'entire' oscillator terms are inextricably tied to the 'varying' term of the claims." *Id.* at 194. The ALJ, thus, concluded that "[t]he relevant oscillators in the Accused Products" clock their associated [CPUs] by providing a fixed frequency, instead of varying the frequency, through the

involvement of their external crystals/clock generators and the PLL circuitry in which the oscillators reside." *Id.* at 195. This finding by the ALJ is independent of his finding that the accused chips also rely on control signals, which is the only factor implicated by Complainants' new "[ ] as operational parameter" argument. Complainants' new assertion cannot, therefore, overcome the conclusion that the oscillators in the Accused Products do not satisfy the "entire oscillator" limitation or the "varying" limitation.

Complainants also fail in the context of the requirement that the claimed "varying" be independent of control signals. In particular, Complainants' current argument is at odds with the very point they made before the ALJ concerning the source of the claimed "operational parameters." Complainants' expert, Dr. Oklobdzija relied on a specific passage from a textbook concerning microprocessors in arguing that "transistors on the same chip are similarly affect by variations in process, voltage and temperature." ID at 134. The textbook states the following:

> Variation is the deviation from intended or designed values for a structure or circuit parameter of concern. The electrical performance of microprocessors or other integrated circuits are impacted by two sources of variation. *Environmental factors* arise during the operation of a circuit, and include variations in *power supply*, switching activity and *temperature of the chip or across the chip*. Physical factors during manufacture result in structural device and interconnect variations that are essentially permanent. These variations arise due to processing and masking limitations, and result in random or spatially varying deviations from designed parameters.

Id. (emphasis added) (citing CX-154 at TPL853_0297444; Oklobdzija Tr., 416-418). Complainants emphasized that "the environmental factors that cause variations in performance include changes in '*power supply*' (voltage) and 'temperature[.]'" *Id.* at 134-135 (emphasis added). Complainants further asserted that "no one disputes that *all of the transistors on the*

same chip, including ring oscillators and CPUs, will be affected by changes in PVT." *Id.* (emphasis added). As such, based on Complainants' own explanation, the voltage or current that may be considered an "operational parameter" as recited in claims 6 and 13 must result from an "environmental factor" that affects "all of the transistors on the same chip, including the ring oscillators and CPUs," such as the chip's "power supply."

Complainants provide no evidence or argument regarding how the [ ] used to control the frequency of the oscillators in the Accused Products can be considered the "power supply" that is available to "all of the transistors on the same chip, including the ring oscillators and CPUs." Moreover, the evidence shows that the [ ], for example, [ ]. *See* ID at 127-128. Dr. Oklobdzija confirmed that the same is true for the [ ]. Oklobdzija Tr., 968-989, 1058-1059 (explaining that the [ ].

We find that the evidence does not support extending the ALJ's finding concerning the power supply [ ] to all of the accused chips. In particular, with respect to the accused TI OMAP chips, TI's corporate witness, Mr. Haroun, testified that [ ]. However, Complainants do not present any evidence, nor could we find any from Mr. Haroun's testimony, that the CPU in the TI OMAP chips is not independently powered. It is Complainants' burden to do so given that they must show the Accused Products do not rely on control signals to generate the clock signal in the on-chip

oscillators.

Based on the preceding discussion, the Commission rejects Complainants' new argument that the [ ] is an operational parameter and not a control signal as waived and, moreover, unsupported by the record. We also note that Complainants' argument has no bearing on the ALJ's finding that the oscillators in the Accused Products do not "vary . . . as a function of" PVT parameters because the PLLs in those chips control the oscillators to match their output frequency to the reference frequency of an "external crystal/clock generator." The Commission, therefore, affirms the ID's finding that the Accused Products do not satisfy the "varying" limitations of claims 6 and 13.

3. "External Clock [] Operative At A Frequency Independent" and "Asynchronously"

a. Proceedings Before the ALJ

The ALJ construed the limitation "[an] external clock is operative at a frequency *independent* of a clock frequency of said oscillator" in claims 6 and 13 of the '336 patent to mean "an external clock wherein a change in the frequency of either the external clock or oscillator does not affect the frequency of the other." Markman Order No. 31 at 11 (emphasis added); *see* ID at 14. This construction was uncontested. *Id.* The ALJ also construed the limitation "wherein said central processing unit operates *asynchronously* to said input/output interface" of claim 13 to mean "the timing control of the central processing unit operates independently of and is not derived from the timing control of the input/output interface such that there is no readily predictable phase relationship between them." *Id.* at 74 (emphasis added); *see* ID at 16. Complainants did not petition for review of the ALJ's construction of the

"asynchronously" limitation. Based on these claim constructions, the ID finds that the Accused Products do not satisfy the "external clock" limitations of claims 6 and 13. ID at 245-259.

The ALJ summarized Dr. Oklobdzija's infringement testimony regarding the "external clock" limitations as follows: "'We have identified or established [the] independence [of the "first" and "second" clocks], basically, by coming from two independent PLLs or ring oscillators within those PLLs.'" *Id.* at 245 (citing Oklobdzija Tr., 702). The ALJ found "that is not sufficient proof that the frequency of either the external clock or oscillator does not affect the frequency of the other" as required by his construction of the claim limitation "independent." *Id.* The ALJ found that "[g]iven the lack of particulars and specificity in Dr. Oklobdzija's summary conclusions, Respondents' expert witness, Dr. Subramanian, responded accordingly by pointing out that the I/O interface signals that Complainants rely on are neither independent nor asynchronous, illustrating this by focusing on the two most common I/O interfaces – the USB and camera interfaces – as well as the LSI Logic B5503A chip." *Id.* at 249-50 (citing Subramanian Tr., 1351-67). In particular, the ALJ noted that:

> Dr. Subramanian testified that the clock signals for the USB interfaces in the accused [
>] are neither independent nor asynchronous. Furthermore, Dr. Subramanian went to the extent of reviewing source code to confirm some of the findings he testified about. (*id.* at 1357). Dr. Subramanian's testimony includes sufficient details showing not only that he examined relevant technical documents, as Dr. Oklobdzija testified he had, but also his reasoning for arriving at his non-infringement conclusions, which is lacking in Dr. Oklobdzija's infringement testimony.

Id. at 250. The ALJ specifically noted Dr. Subramanian's testimony with respect to the accused [ ] chips that all of the PLLs used to clock the internal oscillator and the

I/O interface "use the same [external] crystal reference signal." *Id.*

The ALJ also rejected Complainants' argument that Respondents improperly ignored "both the claim language and the adopted construction [of the 'independent' limitation, which] require[s] a comparison of the frequency of the external (second) clock to the frequency of the oscillator (first clock)" and how a change in the frequencies of those two clocks affect each other. *Id.* at 252-253. Specifically, the ALJ noted that Complainants' argument "raises the specter of Dr. Oklobdzija's and Complainants' own failure, since they did not provide evidence sufficient to demonstrate that a change in the frequency of the second (external) clock or the first clock does not affect the frequency of the other[.]" *Id.* at 253.

With respect to the "asynchronous" limitation of claim 13, Respondents argued that Complainants failed to address the requirement that the CPU clock not be "derived from the timing control of the [I/O] interface." *Id.* at 255. Respondents asserted that, in discussing the "asynchronous" limitation, Dr. Oklobdzija incorrectly "addresse[d] the phase relationship between the phase of the received external reference clock signal and the phase of the PLL's output signal[,] which is provided back to the [ ] by the PLL's feedback loop[.]" *Id.* (citing Oklobdzija Tr., 1026-27) (opining that the unpredictability of the phase relationship of the external reference signal and the output of the PLL's output signal is the entire reason the PLL is required in the first place). Respondents argued that the correct comparison is the "phase relationship[] between the CPU's timing interface and the I/O interface's timing interface].]" *Id.* (citing Markman Order No. 31 at 74). Complainants responded that "the chip documentation" clearly states that the clock relationships in the accused chips are "asynchronous." *Id.* at 257 (discussing the accused [ ] chips).

The ALJ agreed with Respondents' argument that Dr. Oklobdzija's testimony regarding "the phase relationship between the PLL and the external clock" was inapposite. *Id.* at 258. The ALJ also found that "[t]he fact that the technical documents that Complainants cite in their reply brief mention the word 'asynchronous' does not means that those documents are applying the term in the same way as expressed in the adopted construction" of that claim limitation. *Id.* Rather, the ALJ found, "Complainants [improperly] rely on a conclusory statement of Dr. Oklobdzija in which he read the word 'asynchronous' in the user manual for an accused [ ] and made the conclusory assertion that this is enough to meet the claim language." *Id.* (citing Oklobdzija Tr., 1061-62). The ALJ noted that Dr. Oklobdzija also failed to discuss how the use of the word "asynchronous" in the technical documents relates to "the other requirements in the construction of the 'asynchronous' limitations, including (1) timing controls, (2) independence, (3) no derivation, and (4) no readily predictable phase relationship." *Id.* at 259.

In their petition for review, Complainants limited their arguments concerning the "external clock" limitation to only "***external*** second clocks[,]" where the source of the external clock signal derives from peripheral devices that can be connected to the Accused Products using, for example, HDMI or USB cables. Respondents argued before the ALJ that Complainants may not rely on external USB connections for direct infringement because the Accused Products are not connected to USB peripherals as imported, relying on *Certain Elec. Devices with Image Processing Sys., Components Thereof, & Associated Software* ("*Image Processing Sys.*"), Inv. No. 337-TA-724, (U.S.I.T.C. Dec. 21, 2011). *Id.* at 236. Complainants countered that the Commission's holding in *Image Processing Systems* was limited to method

claims and does not apply to apparatus claims like claims 6 and 13 of the '336 patent.[17] *Id.* (citing *Certain Video Game Systems & Wireless Controllers & Components Thereof*, Inv. No. 337-TA-770, 2012 WL [4480570], at *10 (U.S.I.T.C. Aug. 31, 2012)).[18] The ALJ did not address this issue because he found that other limitations of claims 6 and 13 are not satisfied by the Accused Products. *Id.*

b. Analysis

Complainants have not proven direct infringement with regard to the external clock limitation of claims 6 and 13 (*see* ID at 252-53 (discussing the "independent" limitation), 257-259 (discussing the "asynchronous" limitation of claim 13)), nor have Complainants proven infringement of the "entire oscillator" limitation, as discussed above. We, therefore, affirm the ID and further find that Complainants, in addition to not showing that the Accused Products practice the "external clock" limitation for the reasons discussed in the final ID, have also failed to prove that all of the required elements of the asserted claims were met. *See* 19 U.S.C. § 1337(a)(1)(B).

C. Indirect Infringement

"Whoever actively induces infringement of a patent shall be liable as an infringer." 35 U.S.C. § 271(b).[19] A patentee asserting a claim of inducement must show (i) that there has been

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[17] Although Complainants cite the ID as referring to claims 6 and 13 as apparatus claims, the ID, in fact, mistakenly refers to claims 6 and 13 as method claims. *See* ID at 253. We believe this error may have led to some confusion on the ALJ's part.

[18] The citation in the ID for this case is incorrect. We have made the necessary edits.

[19] The Federal Circuit recently addressed under what circumstances a section 337 violation may be based on induced infringement. *Suprema*, 2013 WL 6510929, at *5-12.

direct infringement and (ii) that the alleged infringer "knowingly induced infringement and possessed specific intent to encourage another's infringement." *Minnesota Mining & Mfg. Co. v. Chemque, Inc.*, 303 F.3d 1294, 1304-05 (Fed. Cir. 2002). With respect to the direct infringement requirement, the patentee "must either point to specific instances of direct infringement or show that the, accused device necessarily infringes the patent in suit." *ACCO Brands, Inc. v. ABA Locks Mfrs. Co., Ltd.*, 501 F.3d 1307, 1313 (Fed. Cir. 2007) (citation omitted). This requirement may be shown by circumstantial evidence. *Vita-Mix Corp. v. Basic Holding, Inc.*, 581 F.3d 1317, 1326 (Fed. Cir. 2009). "[A] finding of infringement can rest on as little as one instance of the claimed method being performed during the pertinent time period." *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301 , 1317 (Fed. Cir. 2009).

The specific intent requirement for inducement necessitates a showing that the alleged infringer was aware of the patent, induced direct infringement, and that he knew or should have known that his actions would induce actual direct infringement. *DSU Medical Corp. v. JMS Co., Ltd.*, 471 F.3d 1293, 1305 (Fed. Cir. 2006) (en banc in relevant part); *Global-Tech Appliances, Inc. v. SEB S A.*, 131 S. Ct. 2060, 2068-70 (2011) (holding that willful blindness may be sufficient to meet specific intent requirement). The intent to induce infringement may be proven with circumstantial or direct evidence and may be inferred from all the circumstances. *DSU*, 471 F.3d at 1306; *Broadcom Corp. v. Qualcomm Inc.*, 543 F.3d 683, 699 (Fed. Cir. 2008).

The ALJ found that there is insufficient evidence to support a finding of indirect infringement by Respondents because "there is not a preponderance of evidence showing that any of the Accused Products directly infringes any of the asserted claims of the '336 patent[.]" *Id.* at 280. In particular, the ALJ found no direct infringement because he concluded the

Accused Products do not satisfy the "entire oscillator," "varying," and "external clock" limitations of claims 6 and 13. *See* ID at 118-132, 189-213, 245-259. As discussed above, the ALJ correctly found that the Accused Products do not satisfy any of these limitations. It is undisputed that "[i]nduced infringement requires proof of direct infringement." ID at 276 (citing *Akamai Techs., Inc. v. Limelight Networks, Inc.*, 692 F.3d 1301, 1308 (Fed. Cir. 2012) (en banc)). The ALJ's conclusion on the law is, therefore, undoubtedly correct. We, therefore, affirm the ID's finding that Complainants failed to prove indirect infringement because they failed to prove direct infringement. ID at 80.

D. Domestic Industry

In order to establish a violation of Section 337 in a patent-based action, a complainant must demonstrate that a domestic industry either exists in the United States or is in the process of being established. *See* 19 U.S.C. § 1337(a)(2). Sections 337(a)(2) and (3) set forth the domestic industry requirement in its entirety:

> (2) Subparagraphs (B), (C), (D), and (E) of paragraph (1) apply only if an industry in the United States, relating to the articles protected by the patent, copyright, trademark, mask work, or design concerned, exists or is in the process of being established.
>
> (3) For purposes of paragraph (2), an industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned—
>
> (A) significant investment in plant and equipment;
>
> (B) significant employment of labor or capital; or
>
> (C) substantial investment in its exploitation, including engineering, research and development, or licensing.

19 U.S.C. §§ 1337(a)(2) and (3).

"To be considered 'exploitation' though licensing within the meaning of the statute, the complainant must demonstrate that a particular activity: (1) relates to the asserted patent; (2) relates to licensing; and (3) occurred in the United States." *Certain Liquid Crystal Display Devices, Including Monitors, Televisions, and Modules, and Components Thereof*, Inv. No. 337-TA-741/749 ("*Liquid Crystal Display Devices*"), Comm'n Op. at 109 (June 14, 2012); *see also Certain Multimedia Display and Navigation Devices and Systems, Components Thereof, and Products Containing Same*, Inv. No. 337-TA-694, Commission. Op. at 7-8 (August 8, 2011) ("*Navigation Devices*"). Activities meeting these requirements may be considered in an evaluation of whether the domestic industry requirement has been satisfied. *Liquid Crystal Display Devices*, Comm'n Op. at 109. However, a complainant must also show that the qualifying investments are substantial. *Id.*

1. Economic Prong

a. Proceedings Before the ALJ

Complainants argued that they have a domestic industry under section 337(a)(3)(C) based on their "substantial domestic investments relating to the exploitation of the '336 patent through their [Moore Microprocessor Patent] MMP Portfolio licensing program." *Id.* at 296. Complainants relied on the activities of Alliacense, a California-based vendor of Complainants TPL and PDS, which carries out Complainants' licensing program. *Id.*

Concerning the amount of the Complainants' investment in licensing the MMP Portfolio, the ALJ took into account TPL's investment in Alliacense. *Id.* at 308-9. The ALJ noted that "Alliacense's employees are required to account for all of their activities and provide monthly reports allocating time based on project codes . . . [and] from these reports, the percentage of

time that each employee spends on the MMP Portfolio can be calculated." *Id.* at 309 (citing Leckrone Tr., 1566-67, 1605; Hannah Tr., 1745). The ALJ also took into account "summary documents showing the percentages of each employee's time spent on projects within the MMP Portfolio." *Id.* at 309-10 (citing RX-1794C; RX-1795C; RX-1796C). The ALJ noted that "[b]ased on these summaries, TPL's [Chief Financial Officer] CFO, Mr. Hannah, calculated . . . the total burden costs for these employees based on the hours worked on the MMP Portfolio, salary, benefits, and taxes paid," and concluded that "Alliacense's labor costs related to licensing the MMP Portfolio totaled over [ ]." *Id.* at 310 (citing Hannah Tr., 1742-51; CX-705C; RX-1773C). The ALJ further noted that "Mr. Hannah testified that approximately [ ] was spent on product purchases related to the MMP licensing program" and that the monthly leasing and facility costs for the shared TPL and Alliacense facility are [ ], "allocated to all of TPL's patent portfolios." *Id.* (citing Hannah Tr., 1738, 1756-57; JX-253C). The ALJ also found that "[o]verall, Alliacense's MMP Portfolio licensing activities have resulted in executed licenses with approximately 100 companies resulting in approximately [ ] in revenue." *Id.* (citing Leckrone Tr., 1538-39; Hannah Tr., 1740-41; CX-708C). The ALJ also noted that "[a]dditionally, Complainants rely on TPL's alleged investment of [ ] in PDS. *Id.* at 311.

The ALJ found that Complainants "waived their right to rely on TPL's alleged investment in PDS because Complainants failed to raise [the issue] in their pre-hearing brief." *Id.* (citing Complainants' Pre-Hearing Brief at 216-19; Ground Rule 7.2). The ALJ also found that "Complainants have not shown that PDS does not engage in ineligible activities, such as patent prosecution, or that this investment does not relate to activities that Complainants are

precluded from relying on this in this Investigation, *e.g.*, attorney fees." *Id.* (citing Tr. at 1630; *see also* Order Nos. 38, 61). The ALJ, therefore, "decline[d] to consider TPL's alleged investment of [ ] in PDS[.]" *Id.*

The ALJ, however, "reject[ed] Respondents' argument that Complainants cannot establish a domestic industry because TPL rescinded its ability to license the asserted patent before the Complaint was filed." *Id.* The ALJ found "it immaterial whether it was TPL or another Complainant that had the ability to license the asserted patent at the time the Complaint was filed[,]" and that "there is no dispute that PDS [has] had the right to license the asserted patent . . . throughout this Investigation." *Id.* at 311-12. The ALJ noted that his finding was not affected by Order Nos. 28 and 61, which forbid Complainants from relying on TPL's investments in PDS. *Id.* at 312. The ALJ also disagreed with Respondents regarding the reliability of the testimony of Complainants' witness, Mr. Leckrone. *Id.* The ALJ also disregarded Respondents' argument concerning the reimbursements PDS paid to TPL. *Id.* at 312-13. Specifically, the ALJ found that "[r]egardless of whether the relied upon investments were actually reimbursed, a point that Complainants dispute at least in part . . . there is no dispute that such domestic investments were ultimately paid by a Complainant in this Investigation." *Id.* at 313. With respect to the specific investments, the ALJ found that the [ ] per month investment in the facilities shared by TPL and Alliacense "should be given little weight" because "Complainants acknowledge that that amount should be allocated to each of TPL's patent portfolios . . . [and] neither attempt to determine how much of this investment should be allocated to the MMP Portfolio . . . [or] even argue that a significant or substantial portion should be allocated to the MMP Portfolio." *Id.*

Regarding a nexus between the licensing of the MMP Portfolio and the '336 patent, the ALJ noted the testimony of Alliacense's president, Mr. Leckrone, that there are "approximately 15 patents in the portfolio, including five patents of interest and that the '336 patent is the 'lead patent' in the portfolio." *Id.* at 308 (citing Leckrone Tr., 1534-35). Mr. Leckrone also testified that a claim chart for the '336 patent is always included in product reports presented to potential licensees. *Id.* (citing Leckrone Tr., 1558-59; CX-81C; RX-1762C; CX-22; CX-731C; CX-719C; RX-1759C; CX-1126C). The ALJ found that "based on the small number of patents in the MMP and the testimony and evidence provided," Complainants showed that their activities are "sufficiently related to the asserted patent that they may fully be relied upon in the domestic industry analysis, with the exception of Complainants' alleged facilities costs[.]" *Id.* at 314. The ALJ further found that "a substantial portion of the expenses relied upon by Complainants have the necessary relationship to licensing[,]" noting the testimony of Mr. Hannah that "all of the activities under the one project code" used by Alliacense employees "were considered to be licensing related." *Id.* at 315 (citing Hannah Tr., 1770-71). The ALJ also found that "a substantial majority of the alleged MMP licensing investment" occurred in the United States, though acknowledging that some of the expenses incurred by Alliacense employees involved foreign travel, and costs relating to three employees working overseas. *Id.* (citing Hannah Tr., 1783-95; RX-1784C).

The ALJ also found that Complainants' licensing investments are substantial. The ALJ stated that "[m]ost significantly . . . the amount invested in the MMP Portfolio as a whole (approximately [ ] including labor and product acquisition costs), the small number of patents in that portfolio, and the relative importance of the '336 patent in licensing negotiations,

weighs heavily in favor of finding that Complainants' investments are substantial." *Id.* at 316 (citing *Liquid Crystal Display Devices*, Comm'n Op. at 123). The ALJ also stated that his finding is supported "[t]o a lesser extent . . . [by] the fact that Complainants engaged in ancillary activities after licenses were executed including monitoring licensees' compliance, M&A activities, and transfers of relevant business divisions (*see* Tr. at 1565-66); the fact that Complainants' licensing activities are ongoing (*see* Tr. at 1565-66, 1568,69); and the fact that Complainants' licensing efforts related to the MMP Portfolio have generated over [ ] in revenue (*see* CX-708C; Tr. at 1538-39)." *Id.* at 316-17 (citing *Liquid Crystal Display Devices*, Comm'n Op. at 123-24).

The ALJ weighed these findings against the fact that "Complainants made no attempt to determine the actual value of their investments in the asserted patent, instead relying on the alleged total investment in the MMP Portfolio." *Id.* at 317. The ALJ noted in particular that "[w]hile the Commission does not require an exact allocation of investments to the asserted patents . . . Complainants' failure to set forth any allocation somewhat undermines the weight of the evidence they did provide, particularly because . . . the investments relied upon include portions unrelated to the asserted patent, licensing, or the United States." *Id.* The ALJ also found that "Complainant' licensing activities are revenue-driven and target existing production[,]" as opposed to supporting the production of products covered by the patent. *Id.* Lastly, the ALJ noted that "Complainants do not invest in other activities to exploit the '336 patent[.]" *Id.* (citing *Liquid Crystal Display Devices*, Comm'n Op. at 124).[20]

[20] The ALJ also rejected respondent Garmin's argument that TPL's investments should be rejected because they have a potential nexus only to the version of the '336 patent that was

Respondents argued in their petition for review that TPL's revenue-driven licensing activities, which seek licenses from entities that already produce and sell products that allegedly infringe the patents in the MMP Portfolio, are not the type of licensing program that Congress sought to protect when it amended section 337 to include license-based domestic industries. Respondents noted that the ALJ identified TPL's revenue-driven licensing model as a factor weighing against a finding of substantiality (ID at 317), but argue that, as a policy matter, the Commission should give this factor greater weight in the context of the substantiality analysis – particularly given the paucity of documentary evidence produced by TPL to support its claimed investments. Respondents further argued that Complainants' lack of direct investment in activities to exploit the '336 patent should also receive greater weight in the overall analysis. Respondents also asserted that Complainants' failure to allocate the actual value of their investments in the asserted patent, as opposed to relying on the alleged total investment in the MMP Portfolio, should strongly weigh against a finding of domestic industry.

Respondents also questioned the factors which the ALJ found weigh in favor of a conclusion that Complainants' investments in the MMP Portfolio are substantial. Specifically, Respondents argued that some of Complainants' license agreements include licenses to other patent portfolios, in addition to the MMP Portfolio, and that Complainants' failure to offer its licenses into evidence means that there is no record from which to determine the percentage of the approximately 100 licenses that also include other patent portfolios. Respondents also asserted that none of the ancillary activities the ALJ credited is the type of ancillary activity that

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surrendered during reexamination. *Id.* at 317-19. Respondents did not raise this argument in their contingent petition for review.

the Commission has held supports a finding of substantiality, noting that all of Complainants' ancillary, post-license activities are directed to obtaining additional revenue. *Id.* (citing Leckrone Tr., 1565:23-1566:22).

We note that Respondents do not challenge the ALJ's determination of whether each factor the ALJ weighed favored Complainants or Respondents. In particular, the ALJ specifically considered Complainants' failure to otherwise invest in exploiting the '336 patent as weighing against a finding of substantiality. ID at 317. Respondents failed to point to any particular Commission or Federal Circuit precedent which would require the Commission to afford even greater negative weight to these facts than the ALJ already applied.

Respondents also asked the Commission to give greater negative weight to Complainants' failure to allocate its investments in the asserted patent. However, we find that the "[ ]" investment the ALJ credits is exclusively directed toward the MMP Portfolio and that the '336 patent is the lead patent in this portfolio. *See* ID at 310; CX-705C, Hannah Tr., 1751-52 (testifying that the expenses listed in CX-705C are only for the MMP Portfolio); Leckrone, Tr. at 1534-35. Similarly, concerning Respondents' arguments that Complainants did not specify what portion of its expenses were accrued overseas, TPL's CFO, Mr. Hannah, testified that "for overseas patents, [licenses] are handled for the most part by outside counsel. . . we haven't included any outside counsel costs here." Hannah Tr., 1758:19-1759:25.

Respondents raised two additional issues in their contingent petition for review with respect to the economic prong that do, however, warrant further consideration. First, Respondents argued that complainant TPL cannot establish a licensed-based domestic industry

because it "did not have the right to license the MMP Portfolio at the time the complaint was filed, or anytime thereafter[.]" Respondents noted that "Complainants' domestic industry assertions are properly limited only to TPL's licensing investments, and not those of [] [Patriot] or PDS[.]" In particular, Respondents noted that Order Nos. 28 and 61 preclude Complainants from relying on investments by Patriot or PDS, and argue that "the record is therefore limited to TPL's investment."

We agree with the ALJ that "it is immaterial whether it was TPL or another Complainant that had the ability to license the asserted patent at the time the Complaint was filed." ID at 311. The statute requires that "an industry in the United States, relating to the articles protected by the patent . . . concerned, exists or is in the process of being established" without reference to the necessity of segregating the investments specifically to each intellectual property right owner. 19 U.S.C. § 1337(a)(2). Only three weeks passed between the recission of TPL's right to license the '336 patent and the filing of the complaint, distinguishing this case from *Motiva, LLC. v. Int'l Trade Comm'n*, where the complainant had abandoned its industry three-and-a-half years prior to filing its section 337 complaint. 716 F.3d 596, 601, n.6 (Fed. Cir. 2013) (affirming the "Commission's use of the date of the filing of the complaint as the relevant date at which to determine if the domestic industry requirement . . . was satisfied")).

We acknowledge, however, that PDS's investments were not the basis of the ID's finding that the economic prong has been satisfied. The Commission, therefore, addresses whether the alleged industry still exists even though TPL is no longer actively involved in licensing the '336 patent. *See Certain Electronic Devices, Including Mobile Phones, Portable Music Players, and Computers*, Inv. No. 337-TA-701, Order No. 58, at 6 (Nov. 18, 2010) (unreviewed) (finding that

the Commission should consider whether post-complaint activity indicates that an alleged industry is "dwindling.").

Second, Respondents argued that Complainants failed to demonstrate how their investments in litigation and in prosecution are related to licensing." TPL's CFO, Mr. Hannah testified that the project code TPL used to account for activities concerning the MMP Portfolio included "litigation, prosecution activities, reexamination activities, and other licensing activities." Hannah Tr., 1765:16-1766:18. The ALJ addressed TPL's possible investments in "litigation and prosecution" in the context of nexus. Specifically, he noted Mr. Hannah's testimony that "in his view, 'management decided to have [litigation and prosecution] categories when the activity was significant enough to include those categories[.]'" ID at 314-15 (citing Hannah Tr., 1783). The ALJ did not address, however, what Mr. Hannah meant by this. Furthermore, with respect to substantiality, the ALJ did not specifically address how Complainants' failure to account for the proportion of its asserted investments that concerned the problematic categories of "litigation and prosecution." The Commission determined to review this issue. In connection with its review, the Commission posed the following questions to the parties:

1. With respect to Complainants' alleged licensed-based domestic industry, is there a continuing revenue stream from the existing licenses and is the licensing program ongoing? If the licensing program is ongoing, which complainant(s) is/are investing in the program and what is the nature (not amounts) of those investments?

2. Please describe the claimed expenditures for patent prosecution and litigation and explain how they relate to Complainants' domestic industry in licensing the '336 patent. Please provide an estimate of the proportion of the total claimed investments in licensing the '336 patent accounted for by the claimed patent prosecution and litigation expenditures.

78 *Fed. Reg.* at 71645.

b. Analysis

i. On-Going Licensing Program

The question of whether Complainants had satisfied the economic prong of the domestic industry requirement through licensing at the time they filed the complaint is distinct from the question of whether the domestic industry licensing program has ceased to exist. We address the latter question raised by the respondents here.

Complainants argue that their licensing program is ongoing, noting that as of the date the Complaint was filed, there were roughly 100 licensees to the MMP patent portfolio, which includes the '336 patent and that they executed several licenses subsequent to the filing of the Complaint, including licenses to [ ]. *See* CX-708C; CX-1332C at 19; Leckrone Tr., 120:21-121:15. Complainants further note that revenue from these licenses have totaled over [ ]. Complainants admit, however, that most of the license agreements include a [ ], although they assert that certain licensees . . . [ ]. *See* CX-1332C at 5, 10, 14 ([ ]). Complainants further assert that they have an agreement with [ ] that provides for multiple payments continuing through [ ].

Respondents note that Complainants identify only three licensees that allegedly made [ ] in connection with their licenses, and that each of those licensees made a total of [ ] prior to the filing of the complaint. Respondents further note that Complainants failed to provide evidentiary support with respect to the alleged [ ] license, which was neither admitted nor introduced as evidence, and failed state

how much is due from [ ], the number of expected payments, when those payments are due, or whether any allegedly future payment is contingent and thus may not actually be made. The IA likewise contends that the evidence does not show that there is a continuing revenue stream from Complainants existing licenses, asserting that the evidence shows that each licensee made a single lump-sum payment, with the exception of [ ]. *See* CX-708C; JX-177C; Leckrone Tr., 1538:14-25. The IA further notes, however, that Complainants do not receive any continuing revenue stream from [ ]. *See* CX-1124C at §§ 3.1 and 3.2.[21]

Complainants filed their complaint in this investigation on July 24, 2012. Complainants received payments from [

]. CX-1332C at 19. There is no evidence concerning Complainants' licensing revenue beyond December 2012. The evidence shows that, at the time the complaint was filed, Complainants were not receiving revenue from licenses entered into before they filed the complaint. However, Complainants are clearly still involved in licensing the MMP Portfolio and have received payments for licenses entered into subsequent to the complaint being filed. This fact supports finding that Complainants domestic licensing industry was ongoing at the time of the complaint.[22]

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[21] From our review, the evidence shows that Complainants also received multiple payments from the three licensees Complainants mention – [ ]. CX-1332C at 5, 10, 14. We find no evidence that Complainants received multiple payments from [ ].

[22] Complainants offered to produce the [ ] license upon Commission request. However, the Commission declines to consider the alleged [ ] license. Complainants do not state when the license was executed, but considering that it was a proposed, yet ultimately rejected, exhibit (RX-1561C), we assume it existed prior to the evidentiary hearing. The Commission declines to second-guess the ALJ's rationale for excluding the exhibit or to give Complainants another

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Complainants assert that they made significant investments in their licensing program prior to the initiation of the instant investigation, and continue to do so. Complainants rely primarily on the [ ] that TPL invested in labor costs for TPL and Alliacense personnel involved with the MMP licensing program and [ ] in product purchases made prior to the complaint being filed. *See* ID at 311, 316.[23] Complainants admit that these investments were made from June 2005 through May 2012. Without further support or explanation, Complainants have not shown this evidence of its investments prior to the complaint to be indicative as to the question raised by respondents of whether Complainants' licensing program is ongoing.

Complainants also assert that Alliacense currently provides its licensing services relating to the MMP Portfolio to PDS. *See* Leckrone Tr., 1568:25-1569:4, 1576:7-20, 1577:22-25. Complainants further contend that TPL still participates in the licensing program. *See id.* at 93:6-9, 144:16-145:1. Complainants do not, however, point to any evidence concerning PDS's payments to Alliacense subsequent to when the complaint was filed, not even in the July to December, 2012 time frame through which Complainants' licensing evidence extends.[24] Instead, Complainants note only their pre- and post-complaint expenditures related to the purchase of products for tear-down analysis. *Id.* (citing JX-253C).[25] While the IA asserts that Complainants' licensing program is ongoing, he merely points to conclusory statements by Complainant's

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opportunity to present the license as evidence.

[23] Complainants also mention expenses that the ALJ rejected. *See* ID at 311 (declining to consider "TPL's alleged investment of [ ] in PDS[.]").

[24] We note that CX-1332C shows various expenses for this time frame; however, Complainants do not rely on this evidence and do not explain how it should be interpreted.

[25] We calculate that Complainants, presumably PDS, spent [ ] on product purchases from July 25, 2012, through January 22, 2013.

witness, Mr. Leckrone, without specifying the amount of PDS's continuing investment.

The evidence does support the conclusion that Complainants' licensing program appears to be ongoing under PDS's control, with TPL's participation, although the record does not identify a way to definitively determine the amount of PDS's pre- or post-complaint investment. The Commission determines, however, that the filing of TPL's complaint in this matter is sufficiently contemporaneous with its activities with respect to the licensing of the '336 patent and that those activities should be examined for purposes of the economic prong domestic industry analysis.

Such action is supported by Commission precedent. Indeed, in *Certain Semiconductor Integrated Circuits and Products Containing the Same*, Inv. No. 337-TA-665, ID at 233 (Oct. 19, 2009) (unreviewed in relevant part) ("*Integrated Circuits*"), the ALJ found that a complainant satisfied the economic prong of the domestic industry requirement where it had "been less than one year since [the complainant's] activities [had] diminished" and "prior to entering bankruptcy, [the complainant's] activities in the United States clearly met the standard required to establish the economic prong[.]"[26] In particular, the presiding ALJ in *Integrated Circuits* noted several cases where the Commission found the economic prong satisfied based on "both the complainant's past investment and current domestic activities when the complainant has stopped manufacturing the patented product." *Id.* at 232 (citing *Certain Variable Speed Wind Turbines and Components Thereof,* Inv. No. 337-TA-376, USITC Pub. No. 3003, Comm'n Op. at 25-26 (Nov. 1996); *Certain Battery-Powered Ride-On Toy Vehicles and Components Thereof,*

[26] It is unclear whether TPL lost its rights to license the '336 patent as the result of its Chapter 11 bankruptcy filing. *See* Comp. Review Br. at 34; Leckrone Tr., 140:3-141:17.

Inv. No. 337-TA-314, Order No. 6 at 19-20 (Dec. 5, 1990) (unreviewed); *Certain Video Graphics Display Controllers and Prods. Containing the Same,* Inv. No. 337-TA-412, USITC Pub. 3224, ID at 13 (Aug. 1999) (unreviewed in relevant part)). Although this investigation involves licensing rather than manufacturing, we believe considering TPL's prior licensing investments and Complainants' post-complaint licensing activities is analogous. We, therefore, only need be concerned with the amount TPL invested prior to the complaint filing and which the ALJ found sufficiently tied to Complainants' licensing program. ID at 316.

For purposes of determining whether the economic prong of the domestic industry requirement is met, the ALJ properly limited Complainants to TPL's pre-complaint expenditures through his evidentiary findings. Specifically, in Orders 28 and 61, the ALJ rejected Complainants' belated attempt to rely on the investments of either PDS or Patriot, instead limiting Complainants to TPL's investments. *See* Order No. 28 at 3-4; Order No. 61 at 4-5. We note that PDS, not TPL, is responsible for all post-complaint investment. By considering the transfer of licensing activity from TPL to PDS as an unbroken chain of events concerning the MMP licensing program, we also rely only on TPL's pre-complaint expenditures and avoid and have not considered evidence concerning PDS's post-complaint investments in connection with that activity. *See Motiva*, 716 F.3d at 601, n.6 (affirming the "Commission's use of the date of the filing of the complaint as the relevant date at which to determine if the domestic industry requirement . . . was satisfied").

Based on the precedent discussed above, we find that the evidence concerning Complainants' licensing activity that occurred following the complaint supports finding that Complainants' licensing activities are ongoing, even though the investment in that activity was

made by a different complainant than TPL. The appropriate investments to be examined for the economic prong analysis are the pre-complaint investments of TPL.

ii. Propriety and Significance of Complainants' Investments

Complainants assert that their [ ] in licensing-related expenses do not include significant costs related to patent prosecution or litigation. Specifically, Complainants note the testimony of TPL's CFO, Mr. Hannah, that the expenses listed in CX-705C do not include litigation and lawyers' costs. *See* Hannah Tr., 1759:23-25 (discussing costs for outside counsel).[27] Mr. Hannah further testified that the expenses submitted into evidence relate to licensing and that the term "litigation" in those documents "was broadly defined[.]" *See id.* at 1749:1-12 ("It's licensing, but there may be some involvement as a result [of] questions answered or dealt with as a result of litigation."). Complainants assert that none of the TPL or Alliacense employees acted as legal counsel in patent litigation on behalf of TPL or Alliacense. *See id.* at 1816:8-1817:13.

Complainants note in particular that, starting in 2008, true litigation-related expenses were specifically broken out in a separate product code [ ]. *Id.* at 1765:21-1766:14. Prior to that time, however, TPL and Alliacense employees recorded their times in a single project code [ ], which included everything involved in the process of licensing, *e.g.* expenditures for litigation and reexam proceeding. *See* Leckrone Tr., 1548:3-1550:23, 1552:7-1553:13 (testifying that "as part of the licensing process, Alliacense routinely reverse-engineered products organized the data into claim charts, and presented the information to potential licensees along with data

[27] Mr. Hannah testified that CX-705C's header entitled "Monthly Litigation Hours By Employee" is merely a mislabel. Hannah Tr.,1753:8-13, 177:19-1800:9.

compiled by the IP R&D group and other Alliacense employees"). Complainants argue that, prior to 2008, litigation expenses were not significant enough to warrant a separate category. *See* Hannah Tr., 1783:2-6. Complainants assert that Respondents failed to present any evidence that Complainants' patent prosecution or litigation-related expenses included under project code [ ] prior to 2008 were anything but *de minimis*. Rather, Complainants contend that Respondents, at most, established that Complainants' pre-2008 expenses relating to litigation or patent prosecution was uncertain. *See* Hannah Tr., 1770:12-1773:11. Complainants further note that even with respect to the few potential licensees with which TPL was in litigation, Complainants typically produced product reports well in advance of any litigation, and licensing discussions began prior to litigation and continued after litigation commenced. *See* Hannah Tr. 1776:10-13, 1787:13-1788:7.

Respondents argue that Complainants provided no evidence with which the Commission can determine which of TPL's employee expenses related to licensing as opposed to irrelevant litigation, patent prosecution, and patent re-examination activities for the first three years of expenses relied upon by TPL. Respondents allege that even after TPL ostensibly started to implement sub-codes for litigation and prosecution/re-examination costs at the end of 2008, expenses related to patent prosecution and litigation nevertheless infect the overall total claimed. *See* JX-354 (claiming expenses from 2006 to June 2012)). Respondents call out, in particular, Mr. Hannah's testimony regarding the [ ] TPL spent on personnel conducting IP research and development and IP legal work, arguing that these individuals were largely involved in ineligible patent prosecution and patent work unrelated to licensing. *See* Hannah Tr., 1771:24-1774:1. Respondents further note the [ ] TPL spent on business analysts, some

of whom Respondents claim were communicating with companies involved in litigation with TPL (*id.* at 1774:10-1775:7), the [ ] expenditure for reverse-engineering specialists, who Respondents allege may have been partially involved in litigation-related activities (*id.* at 1781:17-1782:9), and the [ ] cost for operations analysts, who Respondents assert may have been involved in making claim charts for products for purposes of litigation (*id.* at 1782:10-1783:11). Respondents argue that there is no way to determine what portion of the licensing executives' employee costs related to license negotiations with companies with which TPL was in litigation. *Id.* at 1787:23-1788:14). Respondents also challenged Complainants' [ ] in expenditures relating to the acquisition of products for tear down, asserting that some of those acquired products were purchased in anticipation of litigation against various Respondents in connection with the present investigation. *Id.* at 1775:20-1776:1, 1776:24-1778:18.

The IA argues that Complainants' expenditures are significant and that any prosecution and litigation expenditures represent a relatively small portion of Complainants' total claimed investment. In particular, the IA notes that Complainants' [ ] investment in employee expenditures does not include fees paid to outside litigation counsel. *See* Leckrone Tr., 132:5-16. The IA also notes Mr. Hannah's testimony that litigation and patent prosecution expenses were not separately tracked prior to late-2008 because management did not consider those expenses sufficiently significant before that time. *See* Hannah Tr., 1783:4-6. The IA also relied on Mr. Hannah's testimony that the activities of the IP R&D /IP Legal group include preparing claim charts and product reports for potential licensees, and answering questions about non-infringement and prior art related to those claim charts and product reports. *Id.* at Hannah Tr., 1816:25-1817:13. Lastly, the IA notes that, in 2006 and 2007, Complainants were involved in

litigation with only five companies, in comparison with the over [ ] Complainants have contacted and the over 100 license agreements Complainants have entered into.

The Commission's primary consideration is whether the there is sufficient evidence in the record that TPL's [ ] investment ([ ] in employee expenditures for TPL and Alliacense and [ ] for product acquisitions, *see* ID at 311, 316) that the ALJ credited as applying to Complainants' licensed-based domestic industry does not include irrelevant expenditures. In *John Mezzalingua Associates, Inc. v. International Trade Commission*, the Federal Circuit held that litigation expenses do not automatically constitute evidence of the existence of a domestic industry. 660 F.3d 1322, 1328 (Fed. Cir. 2011) ("We agree with the Commission that expenditures on patent litigation do not automatically constitute evidence of the existence of an industry in the United States established by substantial investment in the exploitation of a patent."). In *Coaxial Cable Connectors Components Thereof and Products Containing Same*, Inv. No. 337-TA-650, Comm'n Op. at 50-51 (Apr. 14, 2010), the Commission further held that litigation costs may be considered in determining whether a domestic industry exists, but only if they are directly related to licensing. Furthermore, the Commission has never considered expenditures relating to patent prosecution to be relevant to a licensing-based domestic industry.

We cannot dismiss Respondents' concerns regarding Complainants' failure to support is contention that its claimed investments that are attributable to ineligible patent prosecution and litigation activity are *de minimis*. Complainants presented insufficient evidence that the lack of breakout was because TPL's management did not consider its litigation expenses to be

sufficiently significant to warrant accounting for them separately. Complainants offer no indication of what TPL's management considered to be "significant" litigation expenses that suddenly required separate tracking beginning at the end of 2008. Exhibit RX-1795C shows the expense breakout by project code. The product code [ ], which TPL allegedly used to breakout "true litigation-related expenses," first shows an entry on January 31, 2009, where two employees recorded that they reportedly spent [ ]. *See* RX-1795C at 31. The percentages in this project category range from [ ] (RX-1795C at 36) to [ ] (RX-1795C at 39). From this, we might conclude that TPL's management didn't consider anything under [ ] of litigation-related time to be worth identifying, and such a decision may be reasonable. However, the complaint states that TPL initiated litigation with various companies in the 2005 to mid-2008 time frame. *See* Compl. at ¶¶ 149, 151, 152, 153. Complainants fail to offer any explanation as to why TPL's expenses with respect to these litigations were considered *de minimis* in comparison to later matters.

The evidence supports considering the entire time period of 2006-2012 encompassed by Complainants' exhibits, but excluding the [ ] the ALJ attributed to Complainants' "IP Legal and IP R&D" expenditures. ID at 310. Of all the categories the ALJ considered, this is the most troublesome. Mr. Hannah testified that the IP R&D and IP Legal team evaluates the patents in the MMP portfolio and analyzes the disclosed technology, as well as "continually work[ing] toward strengthening the portfolio by filing additional patent applications." JX-354C, ¶ 13. We find that Mr. Hannah's description of this activity comes uncomfortably close to the improper territory of patent prosecution, rather than licensing.

By contrast, all of the other categories of work Mr. Hannah discusses are arguably

genuinely related to licensing activity. *Id.*, ¶¶ 14-22. We note in particular Respondents' argument that the Commission cannot determine what portion of TPL's licensing executives' employee costs related to license negotiations with companies with which TPL was in litigation. As the Federal Circuit held in *Mezzalingua*, "expenses associated with ordinary patent litigation should not automatically be considered a 'substantial investment in ... licensing,' even if the lawsuit happens to culminate in a license." 660 F.3d at 1328. Unlike the facts in *Mezzalingua*, however, there is no indication that Complainants merely received a license as the result of litigation and otherwise has no licensing program. *Id.* at 1329. To the contrary, there is no question that Complainants have a robust licensing program. Moreover, as Mr. Hannah testified, TPL's licensing executives engaged in negotiations prior to, as well as on the point of, litigation. Hannah Tr., 1787:23-1788:14. The Commission, therefore, rejects Respondents' argument that TPL's licensing executive employee costs should not be considered.

Excluding Complainants' expenditures for IP Legal and IP R&D, Complainants are left with an investment of [ ] in employee costs and [ ] in product acquisition expenses, for a total investment of [ ] from 2006 through 2012. While we note that the pre-2008 expenditures were not tracked using the litigation project code, given Mr. Hannah's description of the remaining employee categories, we find that this analysis sufficiently excludes any improper non-licensing activity.

In finding that TPL's [ ] investment was substantial, the ALJ gave particular weight to certain facts beyond the monetary amount, including "the small number of patents in [the MMP Portfolio] and the relative importance of the '336 patent in licensing negotiations[.]" ID at 316 (citing *Liquid Crystal Display Devices* at 122). The ALJ also found that

Complainants' "investments are substantial in relation to certain industries in light of the large number of executed licenses covering a large percentage of the market (*e.g.*, the mobile phone market (*see* Tr. at 1860-1861) and the number of companies that Complainants have engaged in licensing negotiations." *Id.* (citing *Liquid Crystal Display Devices* at 123). For the first scenario, taking a look at a smaller window of time – 2009 through 2012 instead of 2006 through 2012 – doesn't change the fact that, during that time, TPL's investment was largely focused on the MMP Portfolio and Complainants had a large number of executed licenses during that time period. *See* CX-708C (indicating 41 executed licenses between February, 2009 and June, 2012). Similarly, for the second scenario, excluding all potential expenses related to patent prosecution only bolsters the already strong nexus between TPL's expenditures and the MMP Portfolio. Nor does a more limited view of TPL's investment change the fact that Complainants' licensing program was clearly ongoing through three weeks before the complaint was filed and, as discussed above, was ongoing at the time the complaint was filed through the present.

Based on the preceding discussion, we affirm the ALJ's finding that Complainants have satisfied the economic prong of the domestic industry requirement. Specifically, we find that Complainants' licensing program was ongoing at the time the complaint was filed and that TPL's investment of either $5.5 million from 2009 through 2012 or of [ ] from 2006 through 2012 was substantial.

2. Technical Prong

In his summary of the law concerning the domestic industry requirement, the ALJ stated that "where a complainant is relying on licensing activities, the domestic industry determination does not require a separate technical prong analysis and the complainant need not show that it or

one of its licensees practices the patents-in-suit." ID at 296 (citing *Certain Semiconductor Chips with Minimized Chip Package Size and Products Containing Same*, Inv. No. 337-TA-605, Initial Determination at 112 (February 9, 2009) (unreviewed in relevant part)). The Commission determined to review and requested that the parties brief the issue in light the statutory language, legislative history, the Commission's prior decisions, and relevant court decisions, including *InterDigital Communications, LLC v. ITC*, 690 F.3d 1318 (Fed. Cir. 2012), 707 F.3d 1295 (Fed. Cir. 2013) and *Microsoft Corp. v. ITC*, 731 F.3d 1354 (Fed. Cir. 2013). 78 *Fed. Reg.* at 71645.

Subsequent to the issuance of the Notice of Review in this case, the Commission issued its decision in *Computer Peripheral Devices*, Inv. No. 337-TA-841, definitively holding that there is a technical prong requirement with respect to "articles protected by the patent" for a domestic industry asserted under section 337(a)(3)(C). Comm'n Op. at 24-40, 44 (Dec. 20, 2013).

After issuance of the ID in this case, the Commission noted that, under its prior precedent, a complainant was not historically required "to demonstrate for purposes of a licensing-based domestic industry the existence of protected articles practicing the asserted patents." Comm'n Op. at 27-28. However, the Commission decided in *Computer Peripheral Devices* that a complainant must show that there are "articles protected by the patent" when asserting a licensed-based domestic industry under section 337(a)(3)(C). Due to the posture of this case, the Commission takes no position on whether the requirement is met here in light of its findings of non-infringement. *See Beloit Corp. v. Valmet Oy, TVW*, 742 F.2d 1421 (Fed. Cir. 1984).

IV. CONCLUSION

PUBLIC VERSION

For the reasons discussed above, the Commission finds no violation of section 337 with respect to the '336 patent.

By order of the Commission.

Lisa R. Barton
Acting Secretary to the Commission

Issued: March 21, 2014

CERTAIN WIRELESS CONSUMER ELECTRONICS DEVICES AND COMPONENTS THEREOF **Inv. No. 337-TA-853**

CONFIDENTIAL CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **OPINION** has been served by hand upon, the Commission Investigative Attorney, Whitney Winston, Esq., and the following parties as indicated on **March 21, 2014.**

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