

PUBLIC VERSION

**UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.**

In the Matter of

**CERTAIN ENCAPSULATED INTEGRATED
CIRCUIT DEVICES AND PRODUCTS
CONTAINING SAME**

**Investigation No. 337-TA-501
(Remand Proceeding)**

COMMISSION OPINION

On April 4, 2014, the Commission issued a notice of its final determination of a violation of section 337 of the Tariff Act of 1930, as amended, (19 U.S.C. § 1337) (“section 337”), entry of a limited exclusion order, and termination of this investigation. This opinion discusses the Commission’s determination on the relevant violation issues, and on the issues of remedy, the public interest, and bonding.

I. BACKGROUND AND PROCEDURAL HISTORY

On December 19, 2003, the Commission instituted this investigation under section 337, based on a complaint filed by Amkor Technology Inc. (“Amkor,” or complainant). *See 68 Fed. Reg.* 70836 (Dec. 19, 2003). Amkor alleged a violation of section 337 by respondents Carsem (M) Sdn Bhd; Carsem Semiconductor Sdn Bhd; and Carsem, Inc. (collectively, “Carsem,” or respondents or respondent) in the importation, sale for importation, and sale within the United States after importation of certain encapsulated integrated circuit devices and products containing same in connection with claims 1-4, 7, 17, 18 and 20-23 of U.S. Patent No. 6,433,277 (“the ‘277 patent”); claims 1-4, 7 and 8 of U.S. Patent No. 6,630,728 (“the ‘728 patent”); and claims 1, 2, 13 and 14 of U.S. Patent No. 6,455,356 (“the ‘356 patent”). All three patents are owned by

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Amkor. The investigation also concerns a third-party, ASAT, Inc. (“ASAT”), and its invention (“ASAT invention”), which Carsem argued was invalidating prior art to Amkor’s asserted patents.

On November 18, 2004, the ALJ issued a final initial determination (“2004 Final ID,” “Final ID” or “ID”) finding no violation of section 337. After reviewing the Final ID in its entirety, the Commission on March 31, 2005, modified the ALJ’s claim construction and remanded the investigation to the ALJ with instructions “to conduct further proceedings and make any new findings or changes to his original findings that are necessitated by the Commission’s new claim constructions.” Commission Order ¶ 8 (March 31, 2005). On November 9, 2005, the ALJ issued a remand initial determination (“Remand ID”). The Remand ID found a violation of section 337 with regard to six claims of the ‘277 patent, but found no violation in connection with the asserted claims of the ‘728 or ‘356 patents.¹

¹ We note that in his conclusions of law the ALJ stated that “[t]here is a violation of Section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain encapsulated integrated circuit devices or products containing same by reason of infringement of claims 2, 3, 21 and 22 of the ‘277 patent.” 2005 Remand ID at 113. *See also id.* at i (“The Administrative Law Judge hereby determines that a violation of Section 337 of the Tariff Act of 1930, as amended, has been found in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain encapsulated integrated circuit devices and products containing same in connection with claims 2, 3, 21 and 22 of U.S. Patent No. 6,433,277.”). In the ID, however, the ALJ found a violation of section 337 with respect to claims 4 and 23 as well. *See* 2005 Remand ID at 13-14 (infringement findings); *id.* at 50-57; 77-93 (validity findings); *id.* at 111-112 (conclusions of law regarding infringement and validity). Based on the record, it is reasonable to interpret this discrepancy in the ALJ’s statements as inadvertent, and we determine to modify the 2005 Remand ID to correctly describe the ALJ’s findings, *i.e.*, that he found a violation of section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain encapsulated integrated circuit devices and products containing same in connection with claims 2-4, and 21-23 of the ‘277 patent. For similar reasons, we determine to make similar modifications in the First Supplemental ID. *See* First

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Completion of this investigation was delayed because of difficulty in obtaining from third-party ASAT certain documents that Carsem asserted were critical for its affirmative defenses. The Commission's efforts to enforce a February 11, 2004, subpoena *duces tecum* and *ad testificandum* directed to ASAT resulted in a July 1, 2008 order and opinion of the U.S. District Court for the District of Columbia granting the Commission's second enforcement petition. On July 1, 2009, after ASAT had complied with the subpoena, the Commission issued a notice and order remanding this investigation to the ALJ so that the ASAT documents could be considered.

On October 30, 2009, the ALJ issued a supplemental ID finding that: (1) the co-inventor of the ASAT invention conceived of the ASAT invention in a foreign country sometime during April or May of [[]]; and (2) Amkor's '277 Patent technology was conceived sometime no earlier than [[]] and no later than "December 10, [[]]" Based on the testimony of one of Amkor's former employees, Mr. Roman, the ALJ found that it appears probable, or at the very least plausible, that [[]] refers to the months of May, June, July and August [[]]. Supplemental Initial Determination on Violation of Section 337, Inv. No. 337-TA-501, at 16-17 (Oct. 30, 2009) ("First Supp. ID").² Accordingly, the ALJ concluded that the ASAT invention is

Suppl. ID at 1, 3, 22.

² The ALJ found that Mr. David Roman, one of the named inventors on the '568 patent, predecessor to the '356 patent that was at issue in this investigation, worked for Amkor as an Amkor Design Engineer in the Chandler, Arizona facility between 1996 and 1998, RX-359C (Roman Dep. 10:21-22, 11:5-10, 16:18-21), that during the period from 1996 through 1998, Mr. Roman worked on designing leadframes for MLF products, RX-359C (Roman Dep. 13:5-8), and that his responsibilities at Amkor during this time period included implementation of "Pro-E" software to create a 3-D model of the leadframe package design, RX-359C (Roman Dep.

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not prior art under 35 U.S.C. §102(g)(2) because “Carsem [] failed to prove by clear and convincing evidence that the April/May [] date of invention [for the ASAT invention] . . . is prior to the [May through August] date of invention accorded the asserted claims of the patents-in-suit.” First Supp. ID at 18. The ALJ reaffirmed his initial determination in the Remand ID that: (1) a violation of section 337 has been found in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain encapsulated integrated circuit devices and products containing same in connection with claims 2-4, and 21-23 of the ‘277 patent; and (2) no violation of section 337 has been found in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain encapsulated integrated circuit devices and products containing same in connection with claims 1-4, 7, and 8 of the ‘728 and claims 1, 2, 13 and 14 of the ‘356 patent. The ALJ also reaffirmed the determination in the Remand ID that a domestic industry exists in the United States that practices the ‘277 and ‘728 patents, but no domestic industry exists in the United States that practices the ‘356 patent.

On review, the Commission reversed and remanded, holding that the ASAT invention is § 102(g)(2) prior art because it found, under *Oka v. Youssefyeh*, 849 F.2d 581, 584 (Fed. Cir.

11:11-21). *See* 2004 Final ID at 159. The ALJ considered that, according to Roman, Thomas Glenn, the sole inventor of the ‘277 patent invention, showed Roman this package [[]] so that Roman could create a computerized 3-D model of the package. *Id.* (citing RX-359C (Roman Dep. 42:12-25)). The ALJ found that [[

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1988) (“*Oka*”), that the earliest possible priority date of the ‘277 patent must be the last date in the range of dates, or December 10, which falls after the April/May date of invention for the ASAT invention. Comm’n Op. at 12 (July 27, 2010) (“Comm’n Op.”).

On remand, the ALJ issued a second Supplemental Initial Determination in which he found that the ‘277 and ‘728 patents were invalid under 35 U.S.C. § 102(g)(2) in view of the ASAT prior art and determined that there was no violation of section 337 in the investigation. Supplemental Initial Determination on Violation of Section 337, Inv. No. 337-TA-501, at 23-31 (Mar. 22, 2010) (“Second Supp. ID”).

On July 20, 2010, the Commission determined not to review the ALJ’s 2005 Remand ID which was still pending before the Commission, and his Second Supplemental ID.³ As a result, the Commission determined that there was no violation of section 337 in this investigation. Amkor appealed the Commission’s decision as to the ‘277 patent to the Federal Circuit. The findings of no violation with respect to the ‘728 and ‘356 patents were not appealed by Amkor.

On August 22, 2012, the Federal Circuit reversed the Commission’s determination that the ‘277 Patent is invalid under 35 U.S.C. § 102(g)(2), declined to affirm the Commission’s invalidity determination on the alternative grounds raised by Carsem, and remanded for further proceedings consistent with its opinion. *Amkor Technology Inc. v. Int’l Trade Comm’n*, 692 F.3d 1250, 1261 (Fed. Cir. 2012) (“*Amkor Technology*.”) The Court found that the Commission’s application of *Oka* was legal error. *Id.* at 1258. The Court held that the *Oka* rule (“*i.e.*, according the last possible conception date to a party who can only provide a range of dates,”

³ The Commission did not reach the issues that were decided in the 2004 Final ID, which were not covered by the 2005 Remand ID.

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Amkor Technology, 692 F.3d at 1257), applicable to interference proceedings between patent applicants, does not apply to patent owners like Amkor in validity disputes. The Court indicated that this investigation does not involve an interference, as did *Oka*, and stated that “the standards that apply to interferences do not necessarily apply to disputes over validity.” *Id.* at 1258.

The Court observed that “[t]o invalidate Amkor’s ‘277 Patent under §102(g)(2), Carsem bore the burden of persuasion and was required to submit not just preponderant evidence but clear and convincing evidence that the ASAT invention was conceived in the United States before the invention of the ‘277 Patent.” *Id.* The Court found that Carsem could show only a range of possible dates of United States conception, the first 30 days of which pre-dated Amkor’s possible conception date, and the last 31 days of which overlapped with Amkor’s possible conception dates and that “[s]uch a showing, at best, establishes that the ASAT inventor might have conceived of the invention first.” *Id.* The Court explained that “[e]vidence establishing that there might have been a prior conception is not sufficient to meet the clear and convincing burden needed to invalidate a patent.” *Id.*

The Court concluded that the ALJ was correct in his First Supplemental ID when he found that “‘Carsem [] failed to prove by clear and convincing evidence that the April/May [] date of invention . . . is prior to the [May through August] date of invention accorded the asserted claims of the patents-in-suit.’” *Id.* at 1258 (citing First Supp. ID at 18). Accordingly, the Court reversed the Commission’s determination that the ‘277 Patent is invalid under § 102(g)(2) based on its determination that Carsem failed to prove prior invention in the United States by clear and convincing evidence. *Amkor Technology*, 692 F.3d at 1258.

On October 5, 2012, Carsem filed a combined petition for panel rehearing and for

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rehearing en banc. The Court denied Carsem's petition on December 7, 2012, and issued its mandate on December 19, 2012, returning jurisdiction to the Commission.

On January 14, 2013, the Commission issued its Order ("the Commission Order") directing, *inter alia*, that the parties submit their comments regarding "what further proceedings must be conducted to comply with the August 22, 2012 judgment of the U.S. Court of Appeals for the Federal Circuit in [*Amkor Technology*] and "address whether any issues should be remanded to the Chief Administrative Law Judge for assignment." Commission Order at 3. Carsem and the Commission investigative attorney ("the IA") timely submitted their initial and responsive pleadings. Amkor timely filed its initial pleading and was granted leave to file its responsive pleading out of time.

After considering the parties' submissions, the Commission issued a Notice ("the Commission Notice") requesting briefing on the economic prong of the domestic industry requirement, as well as on remedy, the public interest, and bonding on June 5, 2013. *See 78 Fed. Reg. 35051* (Jun. 11, 2013). In accordance with the Commission Notice, all the parties to this investigation filed timely written submissions and timely reply submissions.

II. SUMMARY OF DETERMINATIONS

Having examined the record in this investigation, including the parties' submissions filed in response to the Commission Order and Commission Notice, and consistent with the judgment of the Court, the Commission has determined to affirm, with certain modifications (as discussed *supra* in footnote 1), the ALJ's First Supplemental ID and Remand ID, thus finding a violation of section 337. The Commission has also determined as follows with respect to the specific violation issues raised by the parties in response to the Commission Order and Commission

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Notice, as well as the issues of remedy, the public interest and bonding.

A. Issues Raised by the Parties in Response to the Commission Order and Commission Notice

(1) Validity of claims 2-4 and 21-23 of the '277 patent.

The Commission affirms the ALJ's determination that claims 2-4 and 21-23 of the '277 patent were not shown to be invalid over the ASAT invention. *See* First Supp. ID at 22.

(2) Carsem's equitable estoppel defense based on Amkor's alleged failure to disclose the '277 patent to JEDEC does not apply in this investigation.

The Commission affirms the ALJ's determination that Carsem failed to show that its equitable estoppel defense based on Amkor's alleged failure to disclose the '277 patent to JEDEC applies in this investigation. 2004 Final ID at 204.⁴

(3) Carsem's legal estoppel defense based on Amkor's alleged failure to disclose the '277 patent to JEDEC does not apply in this investigation.

The Commission affirms, in light of the ALJ's express findings that Carsem failed to prove that Amkor deceived the standard setting body or that the '277 patent is necessary to practice the JEDEC standards, the ALJ's implicit determination that Carsem failed to show that its legal estoppel defense based on Amkor's alleged failure to disclose the '277 patent to JEDEC applies in this case.

(4) Economic prong of the domestic industry requirement under subsection 337(a)(3)(A).

The Commission affirms with modifications the ALJ's finding in the 2004 Final ID that Amkor satisfied the economic prong of the domestic industry requirement under subsection

⁴ JEDEC is the acronym for the Joint Electron Device Engineering Council, a standard setting organization ("SSO") for semiconductor devices.

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337(a)(3)(A). 2004 Final ID at 140.

(5) Economic prong of the domestic industry requirement under subsection 337(a)(3)(B).

The Commission affirms with modifications the ALJ's finding in the 2004 Final ID that Amkor failed to satisfy the economic prong of the domestic industry requirement under subsection 337(a)(3)(B). 2004 Final ID at 142.

(6) Economic prong of the domestic industry requirement under subsection 337(a)(3)(C).

The Commission takes no position on the ALJ's finding in the 2004 Final ID with respect to whether Amkor satisfied the economic prong of the domestic industry requirement under subsection 337(a)(3)(C). 2004 Final ID at 145.

B. Remedy, the Public Interest and Bonding

The Commission determines that: (i) the appropriate remedy is a limited exclusion order ("LEO") prohibiting the unlicensed entry of encapsulated integrated circuit devices covered by claims 2-4 and 21-23 of the '277 patent that are manufactured abroad by or on behalf of, or imported by or on behalf of, Carsem; (ii) the public interest will not be adversely affected by entry of the LEO; and (iii) Carsem is required to post a bond set at a reasonable royalty rate of \$0.00025 (0.025¢) per contact per covered encapsulated integrated circuit device entered during the period of Presidential review.

III. STANDARD ON REVIEW

The Commission made its final determination of no violation, which was the subject of Amkor's appeal to the Federal Circuit, without reaching all of the issues decided in the 2004 Final ID that the Commission had determined to review. Upon remand by the Federal Circuit, and taking into account the views expressed by the parties, the Commission has determined to

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resolve the dispositive issues decided in the 2004 Final ID, which remain under review, in this remand proceeding.

Commission review of an initial determination is limited to the issues set forth in the notice of review and all subsidiary issues therein. *Certain Bar Clamps, Bar Clamp Pads, and Related Packaging Display and Other Materials*, Inv. No. 337-TA-429, Comm'n Op. at 3 (January 4, 2001). Once the Commission determines to review an initial determination, its review is conducted under a *de novo* standard. *Certain Polyethylene Terephthalate Yarn and Products Containing Same*, Inv. 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 Products Containing Same*, Inv. No. 337-TA-382, USITC Pub. 3046, Comm'n Op. at 9-10 (June 2, 1997) (quoting *Certain Acid-Washed Denim Garments and Accessories*, Inv. No. 337-TA-324, Comm'n Op. at 5 (Nov. 1992)).

On 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(c).

IV. DISCUSSION OF THE ISSUES PERTAINING TO THE COMMISSION'S DETERMINATION OF A SECTION 337 VIOLATION⁵

⁵ Our discussion is limited to the legal estoppel defense raised by Carsem and implicitly rejected by the ALJ, and the ALJ's findings regarding the equitable estoppel defense that serve as a basis for the Commission's determination with respect to the legal estoppel defense, as well as the ALJ's findings in the 2004 ID that the Commission has determined to modify or reverse.

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A. The ALJ's finding that no equitable estoppel defense applies in the present case.

We find that the ALJ correctly determined that an equitable estoppel defense does not apply in this investigation. 2004 Final ID at 204.

Respondent Carsem contended that the ALJ erred in rejecting Carsem's equitable estoppel defense based on Amkor's failure to disclose the '277 patent to JEDEC. Carsem's Open at 7.⁶ Carsem argued that, under the Commission's claim construction, the '277 patent is a

⁶ The following abbreviations are used in this Opinion: "Carsem's Open" – Respondents Carsem's Initial Comments to the Commission In Response to January 14, 2013 Order (dated January 28, 2013); "Amkor's Response" – Complainant Amkor's Responsive Comments Regarding the Need for Further Proceedings Following the Federal Circuit's Remand (dated February 4, 2013); "IA's Open" – Response of the Office of Unfair Import Investigations to the Commission's January 14 Order (dated January 28, 2013); "IA's Response" – Response of the Office of Unfair Import Investigations to the Private Parties' Comments on the Commission's January 14 Order (dated February 4, 2013); "IA's PostHearOpen" – Commission Investigative Staff's Post-Hearing Brief (dated August 25, 2004); "Carsem's PostHearReply" – Post Hearing Reply Brief of Respondents Carsem (dated September 3, 2004); "Amkor's PostHearOpen" or "Compl. PostHearing Br." – Complainant Amkor's Initial Post-Trial Brief (dated August 25, 2004); "Carsem's Petition" – Respondents Carsem's Contingent Petition for Review of the Initial Determination (dated December 1, 2004); "IA's Response to Petitions For Review" – Response of the Office of Unfair Import Investigations to Complainant's and Respondent's Petitions for Review (dated December 8, 2004); "Amkor's Response to Carsem's Petition" – Complainant Amkor's Response to Respondent's Contingent Petition for Review of the Initial Determination (dated December 8, 2004); "Carsem's 2005 Comments" – Respondent Carsem's Comments Regarding the Initial Determination on Remand (dated November 28, 2005); "Carsem's Responses" or "Carsem's Response" – Respondents Carsem's Responses to the Commission's Questions Presented In Its June 5, 2013, Notice of a Commission Determination to Request Briefing (dated July 9, 2013); "Carsem's Brief" or "Resp. Remedy Br." – Respondents Carsem's Brief On Remedy, Bond and the Public Interest (dated July 9, 2013); "Carsem's Reply" – Respondents Carsem's Reply to Amkor and the Staff's Briefs on the Economic Prong of the Domestic Industry and Remedy, the Public Interest and Bonding (dated July 16, 2013); "Amkor's Brief" – Complainant Amkor's Brief on the Economic Prong of Domestic Industry and Written Submission on Remedy, the Public Interest and Bonding (dated July 9, 2013); "Amkor's Reply" – Complainant Amkor's Reply Brief on the Economic Prong of Domestic Industry and on Remedy, the Public Interest and Bonding (dated July 16, 2013); "IA's Brief" – Submission of the Office of Unfair Import Investigations on the Economic Prong of the Domestic Industry Requirement, and Remedy, the Public Interest, and Bonding (dated July 9, 2013); "IA's Reply" –

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standard essential patent and Amkor was obligated to disclose it to JEDEC. *Id.* (citing Carsem’s Contingent Petition for Review at 31-32 (Dec. 1, 2004)). Carsem contended that it satisfied each element of equitable estoppel, *i.e.*, “that (1) Amkor failed to disclose its patent rights to the JC-11.11 committee when it introduced its MO-220 proposal in January 1999 and affirmatively misrepresented in the October 1999 [*sic*] that there were no applicable patents, (2) Carsem reasonably relied on Amkor’s misleading statements in voting on the original MO-220 proposal and subsequent revisions for this standard and the MO-229 standard, and designing its MLP products to comply with these standards, and (3) Carsem is materially prejudiced by Amkor’s filing of suit.” Carsem’s Open at 7 (citing *Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1041-43 (Fed. Cir. 1992) (en banc)). Carsem asserted that, as a result, the Commission should determine Amkor is equitably estopped from asserting the ‘277 patent. Complainant Amkor and the IA opposed Carsem’s position. Based on the record, we affirm the ALJ’s determination that an equitable estoppel defense has not been established in this investigation.

In his 2004 Final ID, the ALJ stated that: “Amkor is alleged to have [misled] Carsem by communicating to Carsem in a misleading way through its silence during the period the MO-220 and MO-229 standards were being considered and developed at JEDEC that development of products by Carsem that conformed to these JEDEC standards would not trigger an infringement suit by Amkor because Amkor had not disclosed any patents or patent applications that were

Reply Submission of the Office of Unfair Import Investigations on the Economic Prong of the Domestic Industry Requirement, and Remedy, the Public Industry, and Bonding (dated July 16, 2013); “CIB” - Complainant’s Initial Post-Hearing Brief; “CRB” – Complainant’s Reply Post-Hearing Brief; “RIB” - Respondent’s Initial Post-Hearing Brief; “RRB” - Respondent’s Reply Post-Hearing Brief.

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covered by the JEDEC standard.” 2004 Final ID at 381. The ALJ noted that in order to resolve this matter, a determination must be made concerning Amkor’s duty to disclose as a JEDEC member.

The ALJ relied on the Federal Circuit’s holding that a party such as Carsem must present “clear and convincing evidence that there is a reasonable expectation that the [JEDEC] standard cannot be practiced without a license under the undisclosed [patent] claims.” *Id.* at 382 (citing *Rambus Inc. v. Infineon Technologies AG*, 318 F.3d 1081, 1102-03 (Fed. Cir. 2003) (“*Rambus*”).⁷ The ALJ observed that the Federal Circuit made clear that relevant patents and patent applications are covered by JEDEC’s disclosure policy, *id.* (citing *Rambus*, 318 F.3d at 1100), and noted that “JEDEC’s policy identifies the duty to disclose based on the scope of the claimed inventions that would cover any [JEDEC] standard and cause those who use the standard to infringe,” *id.* (citing *Rambus*, 318 F.3d at 1098). The ALJ quoted from the *Rambus* opinion:

[t]o hold otherwise would contradict the record of evidence and render the JEDEC disclosure unbounded. Under such an amorphous duty, any patent or application having a vague relationship to the standard would have to be disclosed. JEDEC members would be required to disclose improvement patents, implementation patents, and patents directed to the testing of standard-compliant devices—even though the standard itself could be practiced without licenses under such patents.

Id. (quoting *Rambus*, 318 F.3d at 1101).

The ALJ found that Carsem has not shown that licenses are required under the Amkor

⁷ The ALJ noted that, as set forth below, the evidentiary standard under the equitable estoppel doctrine is a preponderance of the evidence, but that difference is not determinative in this case.

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patents at issue to practice the MO-220 and MO-229 standards. *Id.*⁸ The ALJ observed that in *Rambus*, the Federal Circuit further clarified the duty to disclose under the JEDEC standards as follows:

[i]n other words, this duty encompassed any patent or application with claims that a competitor or other JEDEC member reasonably would construe to cover the standardized technology. This does not require a formal infringement analysis. Members are not required to perform a limitation-by-limitation comparison or conduct an equivalents analysis. Rather, the disclosure duty operates when a reasonable competitor would not expect to practice the standard without a license to practice the undisclosed claims. Stated another way, there must be some reasonable expectation that a license is needed to implement the standard. By the same token, the disclosure duty does not arise for a claim that recites individual limitations directed to a feature of the JEDEC standard. . . .

Id. (citing at *Rambus*, 318 F.3d at 1100-1101).

The ALJ stated that Carsem cites to the testimony of Dr. Fehr “which reflects a discussion of his theory that the JEDEC MO-220 and 229 standards can only be complied with using the claims in the Amkor patents at issue.” *Id.* (citing RX-1494C (Fehr Witness Statement 292:13-295:15)). The ALJ found that, “[h]owever, Dr. Fehr states that his opinion is based upon the way ‘Amkor is interpreting the claims.’” *Id.* (citing RX-1494C (Fehr Witness Statement 292:17-18)); *see also id.* (citing RRB 320). The ALJ noted that “all of Amkor’s claim interpretations were not adopted.” *Id.* He further found that:

In addition, Dr. Fehr’s testimony is of a general nature and *does not make reference to particular claim terms in specific patents, and*

⁸ The ALJ found irrelevant Carsem’s assumptions that Amkor has conceded the issues by disclosing patents and patent applications to JEDEC and by agreeing to certain language in the Amkor-ASAT cross-licensing agreement. *See* 2004 Final ID at 383.

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does not discuss the implications of adopting Carsem's claim construction versus Amkor's claim construction on these respective claim terms. Accordingly, Carsem has not satisfied it[s] burden to prove, by a preponderance of the evidence, that the JEDEC MO-220 and MO-229 standards can only be complied with by using the claims in Amkor's '277, '728, and '356 patents.

ID at 384 (emphasis added).

The ALJ further noted that “the fact that *Rambus* was decided under the Virginia fraud standard using the standard of clear and convincing evidence rather than the equitable estoppel standard of a preponderance of the evidence is not determinative. The duty to disclose is the same in both instances. And, as set forth above, Carsem has failed to show, by a preponderance of the evidence, that Amkor violated its duty to disclose under the equitable estoppel doctrine.” *Id.* The ALJ concluded that for all of these reasons, Carsem “has failed to show a misleading communication within the meaning of the equitable estoppel test. In light of Carsem’s failure to meet the first part of the equitable estoppel test, there is no need to discuss the remaining two tests.” *Id.* (citing *Vanderlande Indus. Nederland BV v. Int’l Trade Comm’n*, 366 F.3d 1311, 1325 (Fed. Cir. 2004)).

We find that the ALJ correctly interpreted the record evidence and properly applied controlling Federal Circuit precedent, and we affirm the ALJ’s determination that the equitable estoppel defense is inapplicable in this investigation.

B. The ALJ’s implicit finding that no legal estoppel defense applies in the present case.

We find that the ALJ’s factual findings made as part of his equitable estoppel defense determination and discussed above, likewise demonstrate that the legal estoppel defense does not apply in the present investigation. *See* 2004 Final ID at 382-85. Accordingly, we affirm and

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adopt the ALJ's implicit determination based upon those findings – that Carsem failed to demonstrate that the legal estoppel defense applies in the present investigation.

Carsem contends that the Commission must remand to the ALJ to issue findings on Carsem's legal estoppel defense. Carsem's Open at 8. Carsem asserts that Amkor is obligated by the JEDEC rules to license the '277 patent, which Carsem refers to as a standard-essential patent, on fair, reasonable and non-discriminatory ("FRAND") terms. Carsem contends that Amkor, however, refused to offer Carsem a license on FRAND terms consistent with those previously agreed to and offered by Amkor to other actual and prospective licensees.

Amkor argues, *inter alia*, that "[t]he ALJ explicitly determined that Carsem had failed to establish equitable estoppel because Carsem had not shown that Amkor breached a duty to disclose its patents to a standards body or engaged in any misleading communications. *See* 2004 ID at 380-85. The ALJ's finding also means that Carsem failed to show that Amkor had granted any license under the '277 patent through its standards body activities, and therefore Carsem's legal estoppel defense fails for the same reason." Amkor's Response at 8.

The IA submits that the issue of "legal estoppel" was effectively resolved by the ALJ's "factual findings concerning equitable estoppel (*i.e.*, Respondents' failure to prove that Complainant had breached its duty to JEDEC or that the patents are actually necessary to practice the JEDEC standard)." IA's Open at 3 n. 1 (citing ID at 379-85).

We find that the ALJ's factual findings on equitable estoppel also resolved the issue of legal estoppel. We note that the legal estoppel defense applies when "a patentee has licensed or assigned a right, received consideration, and then sought to derogate from the right granted." *Wang Labs, Inc. v. Mitsubishi Elecs. Am., Corp.*, 103 F.3d 1571, 1581 (Fed. Cir. 1997). There is

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no evidence in the record that Amkor has licensed or assigned the patents to JEDEC or Carsem, and there is no evidence that Amkor received any consideration for a license from JEDEC or Carsem. *See, e.g., Comley, Tr. at 2511-12.*⁹ Although the ALJ never expressly addressed the legal estoppel defense, the ALJ's analysis of the equitable estoppel defense contains express findings that Carsem failed to prove that Amkor had deceived the standard setting body or that the patents at issue are necessary to practice the standard. *See 2004 Final ID at 383-84, see also IA's Response at 3-4; discussion in Part IV.A supra.* The ALJ's findings on equitable estoppel dispose of legal estoppel as well because they show, based on the record, that Complainant has not licensed or assigned the patent rights at issue to Carsem, *see infra*.

In its 2004 Petition for Review, Carsem argued that "Amkor's failure to offer Carsem a

⁹ Mr. David Comley, the Group Managing Director of Malaysian Pacific Industries, the parent company of Carsem, chaired Carsem's engineering council which was responsible for developing the MLP package. *See 2004 Final ID at 339.* Specifically, Mr. Comley testified as follows:

- Q. Okay. And Mr. Davis was writing and inviting you to license Amkor patents, correct?
- A. That is correct.
- Q. And were copies of Amkor's patents enclosed with this letter?
- A. I believe they were.
- Q. And did you decide that you had no intention of responding to this letter, correct?
- A. That is correct.
- Q. And you did not respond to it, is that correct?
- A. That is correct.
- Q. In fact, at any time before this investigation commenced, did Carsem ever seek a patent license from Amkor?
- A. No.

Comley, Tr. 2511:15-2512:5.

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license on reasonable and non-discriminatory terms consistent with those previously agreed to and offered by Amkor confers an implied license on Carsem as a matter of law.” Carsem’s Petition at 32-33. Carsem further contended, alternatively, that “in view of Amkor’s failure to honor its contractual promise to offer a license on reasonable and non-discriminatory grounds, Amkor should be precluded from seeking exclusionary relief from the Commission under Section 337, as the Commission does not have jurisdiction to determine a reasonable-royalty rate and resolve such a contractual dispute. []” *Id.* at 33 (citing JNSI at 730-731; RIB at 363-378; RRB at 325-328.) *See also* Carsem’s PostHearReply at 325 (“As set forth in its initial post-hearing brief, Amkor’s failure to timely disclose its intellectual property to JEDEC in January 1999, and its failure to offer Carsem a license on reasonable and non-discriminatory terms consistent with those previously agreed to and offered by Amkor, confer an implied license on Carsem as a matter of law.”)

The ALJ found, however, that Carsem failed to prove that Amkor had a duty “to offer Carsem a license” on any terms because it failed to prove the ‘277 patent is “standard essential.” These findings are supported both by the record and Federal Circuit precedent. *See* Final ID at 382-385; *see Rambus*, 318 F.3d at 1102-03.¹⁰

¹⁰ We also note that Carsem’s assertions are not accurate. Carsem contends that “[a]lternatively, in view of Amkor’s failure to honor its contractual promise in the April 9, 2001, letter to JEDEC and its members, including Carsem, to offer a license on reasonable and non-discriminatory grounds, Amkor should be precluded from seeking exclusionary relief from the Commission under Section 337.” Carsem’s PostHearReply at 325. The record shows, however, that the April 9, 2001, letter referenced by Carsem is conditional on its face, which is inconsistent with Carsem’s assertion that the letter represents a “contractual promise.” *See* CX-108 (stating that the ‘981 patent (the parent application) and related applications “*may* apply to this registration. *If* the current issued patent or later patents resulting from related applications do apply, Amkor Technology intends to comply with the JEDEC Patent Policy and License under

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Specifically, the ALJ found that Carsem failed to show that any licenses are required under the Amkor patents at issue to practice the MO-220 and MO-229 standards. 2004 Final ID at 383. This finding covers both express and implied licenses, and Carsem did not dispute this finding in its petition for review. *See* Carsem’s Petition at 32-33. Consistent with this finding, the ALJ also found that Carsem has not satisfied its burden to prove, by a preponderance of the evidence, that the JEDEC MO-220 and MO-229 standards can only be complied with by using the claims in, *inter alia*, Amkor’s ‘277 patent. 2004 Final Final ID at 384. Carsem also did not dispute this finding. *See* Carsem’s Petition at 32-33. In arriving at his determination, the ALJ found that “Dr. Fehr’s testimony is of a general nature and does not make reference to particular claim terms in specific patents, and does not discuss the implications of adopting Carsem’s claim construction versus Amkor’s claim construction on these respective claim terms.” 2004 Final ID at 384. Carsem did not dispute this finding either. *See* Carsem’s Petition at 32-33. *See also Rohm and Haas Co. v. Brotech Corp.*, 127 F.3d 1089, 1092 (Fed. Cir. 1997) (“R&H offered *nothing more than its expert’s general opinion* that the accused product or process infringed the patents. The district court determined that the patentee had *not* satisfied its burden of proof on two claim elements. *With very little in the record other than the expert’s summary opinion, this court has little or no basis to question the district court’s determination.*”) (emphasis added).

We note that Carsem does not cite any legal authorities in support of its position on the legal estoppel defense in its opening arguments before the Commission and before the ALJ. *See*

reasonable terms and conditions that are demonstrably free of any unfair discrimination.”) (emphases added). *See also* IA’s Reply at 12-13. As the ALJ found, the ‘277 patent was not necessary to practice the MO-220 and MO-229 standards and therefore the condition stated in the letter did not materialize. *See* 2004 Final ID at 383.

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Carsem's Petition at 32-33; Carsem's Open at 8; Carsem's PostHearOpen at 394-397. In its PostHearing Reply Brief, Carsem attempted to rely on the Federal Circuit decision in *Wang Labs, Inc. v. Mitsubishi Elecs. Am., Corp.*, 105 F.3d 1571, 1582 (Fed. Cir. 1997) as a basis for its legal estoppel claim, *see* Carsem's PostHearReply at 327-328, but such reliance is unavailing in light of the ALJ's findings made based on the controlling *Rambus* precedent.

Carsem disputed that legal estoppel generally requires an express license or assignment, stating that “[a]s discussed below, that is not the test enunciated by the Federal Circuit in circumstances involving violations of standard-setting rules. Accordingly, Amkor's argument that ‘where the record does not reflect that a patent has been licensed, the defense of legal estoppel is inapplicable,’ (citing *Winbond*, 262 F. 3d at 1375) must fail.” Carsem's PostHearReply at 326. Instead, Carsem argued that Amkor's course of conduct in this investigation conferred a right to use the ‘277 patent under *Wang Labs. Id.* at 327-28. This premise for Carsem's legal argument, however, fails as lacking legal and factual support in light of the ALJ's findings that the ‘277 patent is not standard essential, that Amkor did not have a duty to license the ‘277 patent on FRAND terms, and that Amkor did not violate any duty with respect to the standard-setting organization, *i.e.*, JEDEC. ID at 383-384; *Rambus*, 318 F.3d at 1100-01.¹¹ Therefore, the record in this investigation does not show “circumstances involving

¹¹ *See* IA's Response to Petitions for Review at 41 (“As part of its analysis of the issue of equitable estoppel, the ID held that Amkor did not breach a duty to disclose its patents to JEDEC and that Carsem had not shown any misleading communications by Amkor. (ID at 384-85). Under the circumstances, Amkor has not been shown to have ‘licensed or assigned a right’ to Carsem. *See Wang Labs, Inc.*, 103 F.3d at 1581. There is thus no reason for the Commission to review or re-open this defense.”); IA's PostHearOpen at 333-34 (“In addition, the evidence does not show that Amkor violated the JEDEC disclosure policy, if there was a controlling disclosure policy.”) (citing Kelly, Tr. at 2040-42; CX-1, CX-2, CX-3; Fehr, Tr. at 3507-08); *see id.* at 334-

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violations of standard-setting rules.” Accordingly, Carsem’s argument lacks both factual and legal support.

In sum, the record shows that the ALJ correctly determined that there was no duty to disclose on the part of Amkor under the JEDEC standards and that no licenses with respect to the ‘277 patent were required to practice the MO-220 and MO-229 standards. Carsem did not contest these findings. Accordingly, Carsem’s contention that “Amkor’s failure to offer Carsem a license on reasonable and non-discriminatory terms consistent with those previously agreed to and offered by Amkor confers an implied license on Carsem as a matter of law” fails as lacking factual and legal support and does not provide a defense to our finding of infringement and a violation of section 337.

Based on the foregoing, we find that Carsem failed to demonstrate that the legal estoppel defense applies in the present investigation.

C. The ALJ’s determination that Amkor satisfied the economic prong of the domestic industry requirement.

We affirm the ALJ’s determination that Amkor satisfied the economic prong of the domestic industry requirement, with certain modifications, as discussed *infra*. 2004 Final ID at 140.

35 (“Here, Respondents have not shown misleading conduct because, as discussed above, Amkor had no duty to disclose the patents, and misleading conduct through silence can only arise if the patent holder had a duty to speak.”) (citing *A.C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1043-44 (Fed. Cir. 1992) (“silence alone will not create an estoppel unless there was a clear duty to speak, or somehow the patentee’s continued silence reenforces the defendant’s inference from the plaintiff’s known acquiescence that the defendant will be unmolested”)) (internal citation omitted). See also IA’s PostHearReply at 61; IA’s PostHearOpen at 336; Amkor’s PostHearOpen at 203-204.

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Carsem states that the Commission adopted the ALJ's determination that a domestic industry exists for the '277 patent when it determined not to review the 2005 Remand ID. Carsem's Open at 8. Carsem contends, however, that the domestic industry determination does not comply with the Administrative Procedures Act ("APA") because it does not contain any findings or bases for support. Carsem also contends that the legal framework for evaluating the existence of a domestic industry has changed since 2004, and that the Commission should request briefing from the parties on whether Amkor can meet its burden of proof under the current legal framework before issuing a final determination on whether Amkor has met its burden to prove the existence of a domestic industry. Amkor and the IA oppose Carsem's position.

We find that the record and legal precedent support the ALJ's determination that complainant Amkor met the economic prong requirement in this investigation, as detailed below.

As part of its review of this issue on remand from the Federal Circuit, the Commission requested that the parties answer the following briefing question:

Whether there is any intervening legal precedent since the issuance of the 2004 Final ID that precludes or warrants the ALJ's determination that Amkor satisfied the economic prong of the domestic industry requirement under section 337(a)(3)(A), and did not satisfy the economic prong under section 337(a)(3)(B). *See* 19 U.S.C. § 1337(a)(3)(A) and (B).¹²

¹² Section 337(a)(3) sets forth the following criteria for determining the existence of a domestic industry:

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 . . . concerned –

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Notice at 3. Based on the parties' submissions and for the reasons that follow, we find that no intervening legal precedent is contrary to the ALJ's determinations under 19 U.S.C. §§ 1337(a)(3)(A) and (B).

1. The ALJ's determination that Amkor satisfied the economic prong of the domestic industry requirement under section 337(a)(3)(A)

The ALJ found that, based on the record, “. . . there is no cause to question Amkor's evidence demonstrating that criterion (A) of the economic prong of the domestic industry requirement has been met.” 2004 Final ID at 140.¹³ Carsem argues that intervening legal precedent warrants the reversal of the ALJ's determination that complainant satisfied the economic prong under Section 337(a) (3)(A). *See* Carsem's Responses at 2-10, Carsem's Reply at 8-14. Amkor and the IA take the opposite view. Amkor's Brief at 4-5, Amkor's Reply at 3-4; IA's Brief at 6-8; IA's Reply at 4. For the reasons that follow, we affirm the ALJ's determination that Amkor met the economic prong of the domestic industry requirement with respect to the '277 patent under Section 337(a) (3)(A), with certain modification in the ID's recitation of the applicable law, *see infra*.

The ALJ found that while Amkor manufactures its Micro LeadFrame (“MLF”) products

(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)(3).

¹³ For the ALJ's analysis and determination on this issue *see* 2004 Final ID at 134-140.

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overseas rather than in the United States, it nevertheless has provided evidence to demonstrate that the “economic prong” of the domestic industry requirement of Section 337(a)(3)(A) is met with respect to its MLF products protected by the patents at issue by reason of Amkor’s investment in plant and equipment in the United States. 2004 Final ID at 134; CIB 61-76; CRB 79-89. The ALJ found that Amkor allocated its total investments to its MLF products according to a unit ratio of approximately [[]] (which was calculated from Amkor’s sales of [[]] MLF packages out of a total of [[]] units of products sold in 2002). *Id.* at 135 (citing CIB 65; McKinney Tr. 868:13-20; CX-1498C). The ALJ found that using this allocation percentage, Amkor’s fixed-asset investments in U.S. facilities attributable to MLF products amount to at least [[]] *Id.* at 136 (citing McKinney Tr. 950:25-951:13 (July 12, 2004); CX-1496C; CX-1573C). The ALJ further found that while Amkor admits that its investment in plants and equipment for its overseas manufacturing operations are larger than its investment in its U.S. plants and equipment, its U.S. operations are vital to its business. *Id.* at 136 (citing CIB 66; McKinney Tr. 882:21-884:4 (July 9, 2004)).

The ALJ considered and rejected Carsem’s argument that Amkor has not demonstrated that its U.S. investment in plant and equipment is “significant” when compared to its overseas operations. *Id.* at 136 (citing RIB 145-49). The ALJ stated:

. . . [T]he functions performed in Amkor’s U.S. facilities “may relate to manufacturing, but most appear to deal with general support for the products.” SIB 96. However, no party has pointed to any law, and the undersigned does not know of any law, that requires the plant and equipment expenses incurred in the United States “with respect to the articles protected by the patent . . . concerned” to be of any particular kind or devoted to any particular function, be they administrative overhead or manufacturing expenses. There is no case law that says that the words “significant

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investment in plant and equipment” in Section 337(a)(3)(A) only means a *manufacturing* plant or *manufacturing* equipment any more than it means any other type of plant or equipment, including a parking lot or a desk and chair. Thus, there is no merit to Carsem’s contention that the type of facilities that Amkor points to for its domestic investment in plant and equipment are not “relevant” to Section 337(a)(3)(A) merely because they are “non-manufacturing” facilities.

2004 Final ID at 138 (emphasis supplied by the ALJ). The ALJ found that, with regard to the relative importance of domestic activities to the total activities conducted in connection with the product, the evidence suggests that Amkor’s investment in U.S. plant and equipment that was allocable to MLF products worldwide during 1999-2003 amounts to roughly [[]] of its total overseas investment in plant and equipment during the same time period [[

]] *Id.* The ALJ stated that the Commission “has not committed the domestic industry analysis to a rigid numbers game. Rather, the Commission has stated that ‘[t]he scope of the domestic industry in patent-based investigations has been determined on a case by case basis in light of the realities of the marketplace and encompasses not only the manufacturing operations but may include, in addition, distribution, research and development and sales.’” *Id.* at 139 (citing *Certain Dynamic Random Access Memories, Components Thereof and Products Containing Same*, Inv. No. 337-TA-242, USITC Pub. No. 2034 (November 1987), Comm’n Op. at 62, 1987 WL 450856 (September 21, 1987) (“*DRAMs*”)) (footnotes omitted)).

We note that all parties agree that *Certain Printing and Imaging Devices and Components Thereof* (“*Printing and Imaging Devices*”), Inv. No. 337-TA-690, Comm’n Op. (Pub. Version) (Feb. 17, 2011) represents the most relevant precedent on the issue of the economic prong of the domestic industry among the Commission’s decisions rendered after the

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2004 Final ID issued in this investigation. See IA's Brief at 6; Amkor's Brief at 5; Carsem's Brief at 2. *Printing and Imaging Devices* provides that:

The language of sections 337(a)(2) and 337(a)(3)(A) and (B) taken together indicate the intent of Congress that in order to establish a domestic industry, a complainant's investment in plant and equipment or employment of labor or capital must be shown to be "significant" in relation to the articles protected by the intellectual property right concerned. Thus, under the statute, whether the complainant's investment and/or employment activities are "significant" is not measured in the abstract or in an absolute sense, but rather is assessed with respect to the nature of the activities and how they are "significant" to the articles protected by the intellectual property right.

Printing and Imaging Devices at 26; see also *Kinesiotherapy Devices* at 33 ("Given the importance of context in the Commission's analysis, there is no threshold test for what is considered 'significant' within the meaning of the statute. *Certain Male Prophylactic Devices*, Inv. No. 337-TA-546, Comm'n Op., at 39 (Aug. 1, 2007). Instead, the determination is made by 'an examination of the facts in each investigation, the article of commerce, and the realities of the marketplace.' *Id.*").

In other words, whether the complainant's investment and/or employment activities are "significant" is not measured in the abstract or in absolute terms, but rather is evaluated in the context of the activities and how they are "significant" to the articles protected by the intellectual property right. Based on the record, such contextual analysis with respect to section 337(a)(3)(A) (investment in plant and equipment) was performed by the ALJ. The ALJ considered Amkor's allocation of its investments to its MLF products as compared to its total product line. He likewise compared the domestic investments in plant and equipment to Amkor's foreign investments in plant and equipment (as allocated), evaluated the testimony that these domestic

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investments were vital to Amkor's overall worldwide production, and determined that Amkor had shown that its domestic investments were "significant" as required by Section 337(a)(3)(A).

Specifically, the ALJ found that Amkor demonstrated that its MLF product line practices the '277 patent. *See* Remand ID at 105 ("Accordingly, the undersigned holds that Amkor has proven by a preponderance of the evidence that its products meet all the limitations of Claim 21 of the '277 patent. Therefore, Amkor has satisfied the technical prong of the domestic industry requirement for the '277 patent."). Furthermore, Amkor presented evidence showing that even though its domestic investments in plant and equipment related to the MLF products may have constituted only roughly [[]] of its foreign investments, they played a critical role in various aspects of the production of the patented MLF products including manufacturing management, product management, production planning, research and development, and engineering. *See, e.g.,* G. McKinney, Tr. 852:19-853:5, 875:10-18, 882:21-885:16, 887:15-890:2, 967:21-968:13; 2004 Final ID at 138-40.¹⁴ Specifically, the ALJ relied on the following un rebutted testimony of "Mr. McKinney, a corporate officer of Amkor who is knowledgeable in such matters," who

¹⁴ The record supports the ALJ's finding that Amkor's fixed-asset investments in U.S. facilities attributable to MLF products amounts to at least [[]] 2004 Final ID at 136 (citing McKinney Tr. 950:25-951:13 (July 12, 2004); CX-1496C; CX-1573C). Furthermore, while Carsem argued that it is improper for Amkor and the ALJ "to rely on the total sales of all MLF products as the basis for a unit ratio allocation percentage of Amkor's investment in plant and equipment that must relate solely to the MLF products purportedly practicing the three patents in suit," Carsem submitted that based on the number of products related to the three patents at issue in the investigation (*i.e.*, 68 MLF products that practice both the '277 and '356 patents, and 29 MLF products that practice only the '728 patent), "the unit ratio allocation percentage [[]] will be much less for the '728 patent which allegedly covers only 29 MLF products." Carsem's Petition at 26. Accordingly, it follows that of [[]] investments in the U.S., at least over [[]] can be attributed to the '277 patent (under the most conservative estimate).

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responded as follows to the following questions:

Q. Do you have any reason to disbelieve or challenge [the deposition testimony of Kenneth Joyce, Amkor's Chief Financial Officer and Mr. McKinney's manager] that Amkor's investment in equipment for its overseas facilities is in excess of [[]]

A. May I elaborate upon my answer, please?

Q. Yes.

A. As I testified on Friday, Amkor has significant manufacturing muscle around the world. And there are significant investments that we have made to put in that manufacturing capability. I think I also stated that the overseas investments were greater than the United States investments with respect to the fixed assets, but I also believe I stated on Friday that although the investment difference is large between the overseas and the domestic side, that the role that each organization plays is critical to the overall success of the business.

2004 Final ID at 139-140 (citing McKinney Tr. 967:21-968:13 (July 12, 2004)).

In other words, Mr. McKinney testified regarding the functions performed by employees in these U.S. facilities and the critical role they played in enabling Amkor's overseas factories to manufacture the protected articles. He testified that Amkor's U.S. facilities were critical to Amkor's production of the patented products indicating that Amkor would not be able to manufacture MLF products in the factories overseas without the managerial and coordination functions provided by personnel headquartered at the U.S. facilities. *See* McKinney, Tr. 883:23-885:16.¹⁵

¹⁵ In particular, McKinney testified as follows:

Q. What is the importance of Amkor's U.S. facilities as compared to the overseas facilities?

A. With the many factories we have around the

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world and the many product lines we run through those factories, the domestic facilities provide much of the leadership and coordination for the business within those facilities.

Q. Would you be able to manufacture a product without the U.S. facilities?

A. Let me talk about some of the responsibilities in Chandler and other facilities in the United States and that will help me arrive at a more clear answer.

If you look at some of the product management responsibilities in terms of developing, identifying customer needs, working with the factories to ensure that product coordination occurs, looking at the worldwide planning activities that occur within Amkor to ensure that complete demand is understood and that product is effectively planned across the many factories that we have for product lines that are shared between factories, looking at the worldwide manufacturing coordination that occurs in Mr. Jooho Kim's team to put together the labor and equipment strategies across the factories and to ensure that they are effectively aligned to overall product strategies, sales and marketing strategies, and finance strategies, in line to our business model.

So in my opinion we would not have manufacturing facilities without the domestic Amkor, but, on the other hand, we also wouldn't have the domestic Amkor without the manufacturing facilities. So both pieces play a key role in the complete execution of our business model.

Q. Can you think of any analogy that would illustrate the relative roles played by overseas factories and the U.S. facilities?

A. I had said earlier that the manufacturing, Amkor provides much of the muscle with moving products through our organization and Amkor domestic will provide the brains to ensure the coordination of those muscles and that the full power for lack of a better term is achieved.

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See also IA's Reply at 4 n. 2 ("OUII also notes that, contrary to Respondents' arguments, the testimony at the hearing established the nature of Complainant's investments and how these investments are vital to the worldwide production. (See, e.g., McKinney, Tr. at 882-85).").

Furthermore, the ALJ found that "Carsem has not presented any evidence to counter Amkor's assertions that its U.S. corporate facilities are 'critical' to its worldwide enterprise."

2004 Final ID at 104. Moreover, based on the record, the ALJ found that:

Carsem's bare attorney argument in its briefs on this point is not accompanied by any countervailing expert testimony or other evidence to show, in economic or financial terms, whether a [[]] ratio of domestic to overseas investment in plant and equipment is "significant" or not in light of "the realities of the marketplace." See, e.g., *Micro lithographic Machines*, Initial Determination, *supra* (comparative analysis presented in the form of undisputed expert economic testimony).

2004 Final ID at 104.

Based on the foregoing, Carsem failed to demonstrate that the ALJ's analysis is not compliant with Commission precedent. We note that Carsem does not dispute the ALJ's findings quoted above. See Carsem's Brief at 14-16; Carsem's Reply at 26-30. Accordingly, we find that the ALJ's conclusion:

Therefore, there is no reason to doubt that Amkor's U.S. facilities are significant in relation to its foreign facilities when viewed in the light of "the realities of the marketplace," as the Commission requires. See *DRAMs*, *supra*; *Diltiazem*, *supra*. Accordingly, there is no cause to question Amkor's evidence demonstrating that criterion (A) of the economic prong of the domestic industry

McKinney, Tr. 883:23-885:16.

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requirement has been met.

2004 Final ID at 104, is supported by the record and complies with the Commission's controlling precedent. *See Printing and Imaging Devices*, Inv. No. 337-TA-694, Comm'n Op. at 26, *Kinesiotherapy Devices*, Inv. No. 337-TA-823, Comm'n Op. at 32. Therefore, we affirm the ALJ's determination that Amkor met the economic prong of the domestic industry requirement under section 337(a)(3)(A).

We, however, determine that certain modifications must be made to the ALJ's recitation of the applicable law pertaining to the economic prong. Prior to conducting his analysis, the ALJ stated as follows:

In past cases involving domestic activities under criteria (A) and (B) in patent-based Section 337 investigations where the alleged domestic article has been partially or wholly produced abroad, the Commission has based its domestic industry analysis at least in part on the relative importance of domestic activities to the total activities conducted in connection with the product. *See Encapsulated Circuits, supra*, Initial Determination at 88; *also see Certain Concealed Cabinet Hinges and Mounting Plates*, Inv. No. 337-TA-289, Commission Opinion at 22-23, 1990 WL 710375 (U.S.I.T.C., January 8, 1990) ("*Hinges*") (Where imported product was covered by the patent and the only domestic manufacture involved the addition of an optional feature outside of the patented invention, the domestic investment allocable to the product relative to the overall activities in exploitation of patented invention was not "significant" within meaning of Section 337(a)(3)); *also see DRAMs, supra* at 67 (Even before Section 337(a)(3) was enacted, "[i]n a case where the product under investigation is produced partly in the United States and partly abroad, the Commission traditionally examine[s] the nature and significance of the activities in the United States in order to determine whether a domestic industry exists."); *see also Certain Microlithographic Machines and Components Thereof*, Inv. No. 337-TA-468, Initial

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Determination at 347-52, 2003 WL 1831891(U.S.I.T.C., January 29, 2003) (“*Microlithographic Machines*, Initial Determination”), *Notice of Commission Non-review*, 68 Fed. Reg. 13951 (March 21, 2003) (Commission adopts ID in its entirety but takes no position on ID’s “findings on criteria (A) and (B) of the economic prong of the domestic industry requirement under section 337 (a)(3) when a domestic product is made partly or wholly abroad”), *appeal pending sub nom. Nikon Corp. v. I.T.C.*, No. 03-1378 (Fed. Cir., docketed May 14, 2003). While in some cases the Commission has downplayed the significance of this comparative analysis of domestic and non-domestic activities, neither Congress nor the Commission has ever wholly eliminated a comparative showing of domestic economic activity as a factor in establishing a violation of Section 337 in instances where the product at issue is made abroad in whole or in part. *See, e.g., Certain In-line Roller Skates*, Inv. No. 337-TA-348, Initial Determination (Order No. 21) at 6, 1993 WL 852393 (U.S.I.T.C., July 30, 1993), *reversed and remanded by Commission*, Commission Notice (August 31, 1993) (“*Skates*”) (Initial Determination, finding that complainant entitled to summary determination of domestic industry based solely on the basis of its employment of five people in U.S. who test quality of skates at issue, reversed by Commission); *also see Microlithographic Machines*, Initial Determination, *supra*.

By contrast, economic analyses under criterion (C) in recent cases involving products produced entirely abroad have required only “a sufficient nexus between Complainants’ domestic activities and investments and the patents at issue” *Certain Integrated Circuits, Processes for Making Same, and Products Containing Same*, Inv. No. 337-TA-450, Initial Determination at 155, 2002 WL 31662205 (U.S.I.T.C., May 6, 2002), *unreviewed in relevant part*, Notice of Commission Decision to Review Portions of an Initial Determination Finding No Violation of Section 337 of the Tariff Act of 1930, at 3 (June 21, 2002) (“*Integrated Circuits*”); *also see Certain Integrated Repeaters, Switches, Transceivers, and Products Containing Same*, Inv. No. 337-TA-435, Initial Determination at 189 (Final decision without Commission review), 2001 WL 1769747 (U.S.I.T.C., July 19, 2001) (“*Integrated Repeaters*”). A comparative analysis of domestic to foreign

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activities has not been required under criterion (C). *See Memory Controllers, supra*. In making this “nexus” analysis, however, “[t]o include activities which are in the same field of technology but which do not have the requisite nexus to the patent would be contrary to the statute.” *Certain Dynamic Sequential Gradient Compression Devices and Component Parts Thereof*, Inv. No. 337-TA-335, U.S.I.T.C. Pub. No. 2575 (November 1992), Initial Determination at 63, 1992 WL 813958 (U.S.I.T.C., May 15, 1992) (vacated by Commission on other grounds) (“*Compression Devices*”).

This case law suggests that it is appropriate to utilize a comparative analysis of domestic to foreign economic activity under criteria (A) and (B), but to utilize the “nexus” approach under criteria (C) based on “absolute” evidence of domestic activity without the need to show a comparison to foreign activity. In other words, the burden falls on Amkor to demonstrate either (i) “significant investment in plant and equipment,” or (ii) “significant employment of labor or capital,” by referring as one factor to the relationship of its domestic activities to its worldwide activities that are devoted to either or both of these factors in connection with the products at issue; or, in the alternative, to demonstrate (iii) “substantial investment in . . . exploitation [of the patents at issue], including engineering, research and development, or licensing,” by showing “a sufficient nexus” between Amkor’s domestic activities and investments on the one hand, and the patents at issue on the other. *See Microlithographic Machines, supra*, Initial Determination at 347-52.

ID at 130-32. This recitation can be read to require a comparative analysis of domestic to foreign economic activity under criteria (A) and (B), whereas Commission precedent does not dictate that such analysis is mandatory. Rather, Commission precedent provides that such comparative analysis is only one of the factors the Commission can employ in its analysis under Section 337 (a)(3)(A) and (B). *See e.g. Printing and Imaging Devices* at 29 (“The Commission’s determination as to whether a complainant has established that its investment and/or employment

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activities are significant with respect to the articles protected by the intellectual property right concerned is not evaluated according to any rigid mathematical formula.”); *see id.* (among other things, “[t]he Commission has also assessed, the relative domestic contribution to the protected article by comparing complainant’s product-related domestic activities to its product-related foreign activities.”) *See also, e.g.,* IA’s Response to Petitions For Review at 37-38 (comparative analysis is not mandatory).

Accordingly, we reiterate that the comparative analysis of domestic to foreign economic activity under criteria (A) and (B) is not mandatory, but rather is one of the factors the Commission can utilize in its analysis to ensure that the Commission’s determination entails a thorough examination of the facts in each investigation in the context of the industry, the article of commerce, and the realities of the marketplace.

2. The ALJ’s determination that Amkor failed to satisfy the economic prong of the domestic industry requirement under section 337(a)(3)(B)

All parties take the position that there is no intervening precedent that warrants the reversal of the ALJ’s determination that complainant failed to satisfy the economic prong under Section 337(a)(3)(B). For the reasons that follow, we affirm the ALJ’s determination that Amkor failed to meet the economic prong of the domestic industry requirement with respect to the ‘277 patent under Section 337(a)(3)(B), with certain modifications to his rationale.

We agree with the parties that with respect to section 337(a)(3)(B), significant employment of labor and capital, there has been no intervening Commission precedent that would change the ALJ’s determination under this factor. While we agree with the result reached by the ALJ on this issue, we find that the ID should be modified to reflect the fact that a

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comparative analysis is not the only way to evaluate the context of the domestic investments.

Two portions of the ALJ's discussion touch upon this issue and appear to hold that the comparative analysis is mandatory with respect to prong (B). The first portion is contained in the ALJ's recitation of the law of the economic prong. *See* 2004 Final ID at 131-32 (we discussed this portion *supra* in the context of prong (A)).

The second portion of the ID requiring modification is on page 142 and reads as follows:

In view of the unreliability of Amkor's labor data, and in the absence of comparative evidence with overseas labor costs, Amkor has failed to demonstrate that criterion (B) has been met. See Microlithographic Machines, supra ("neither Congress nor the Commission have ever wholly eliminated a comparative showing of domestic economic activity as a factor in establishing a violation of Section 337 in instances where the product at issue is made abroad in whole or in part").

2004 Final ID at 142 (emphasis added). The Commission does not adopt the italicized language in the paragraph quoted above because Commission precedent does not mandate a comparative analysis and "comparative evidence," although such analysis and such evidence can be a part of the basis of the Commission determination on the economic prong under Section 337(a)(3)(B). *See Printing and Imaging Devices*, Inv. No. 337-TA-694, Comm'n Op. at 27 (discussing various possible ways to demonstrate the requisite context, including, *e.g.*, assessing "the relative domestic contribution to the protected article by comparing complainant's product-related domestic activities to its product-related foreign activities."); *accord Kinesiotherapy Devices*, Inv. No. 337-TA-823, Comm'n Op. at 34 ("Although the statute does not provide a precise definition of 'significant' investment, it does not indicate that the significance of investment in the United States must be evaluated relative to the significance of the foreign investment in

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purely mathematical terms.”).

We find, however, that the ALJ’s alternate basis for holding that Prong B was not satisfied, *i.e.*, the unreliability of Amkor’s evidence, is a factual determination based on credibility, which Amkor has not shown to be clearly erroneous.¹⁶ Accordingly, we affirm the ALJ’s determination on this issue with the modifications discussed above.

3. The ALJ’s determination that Amkor satisfied the economic prong of the domestic industry requirement under section 337(a)(3)(C)

In view of the Commission’s determination that complainant satisfied the economic prong of the domestic industry requirement under Section 337(a)(1)(A), the Commission finds

¹⁶ Specifically, the ALJ found that:

At the trial, Amkor attempted to introduce evidence to show the amount of its U.S. labor costs in two ways. One way was a chart purporting to show the amount of Amkor’s U.S. engineering labor hours devoted to MLF activities by [[]] U.S.-based engineers during the period 1999 through early 2003. McKinney Tr. 944:6-15 (July 12, 2004); CX-467C; *also see* CX-1498C (a clearer version of CX-467C). These figures, however, are not based on any employee records or time sheets, but merely on personal estimates that another Amkor employee, Terry Davis, gave to Mr. McKinney and that Mr. McKinney did not separately verify. RX-275C (T. Davis Dep. 166:19-176:13); CX-467C; McKinney Tr. 997:5-13, 998:23-999:5 (July 12, 2004); CX-1498C. These figures are, in short, mere conjecture.

Another way that Amkor tried was an allocation of its U.S. selling, general and administrative (“SG&A”) costs to MLF products. . . . However, Amkor offered no credible evidence that broke its U.S. labor costs (*i.e.*, payroll costs, payroll taxes and employee benefits) out of its SG&A numbers. Amkor also presented no credible evidence on which to base a comparison of Amkor’s U.S. labor costs to its overseas labor costs.

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that it is unnecessary to reach the issue of whether Amkor satisfied the economic prong of the domestic industry requirement under section 337(a)(3)(C). *See Beloit Corp. v. Valmet Oy*, 742 F.2d 1421 (Fed. Cir. 1984).¹⁷

V. REMEDY, THE PUBLIC INTEREST, AND BONDING

A. Remedy

1. Limited Exclusion Order (“LEO”)

Under Section 337, the Commission has “broad discretion in selecting the form, scope, and extent of the remedy.” *Viscofan, S.A. v. United States Int’l Trade Comm’n*, 787 F.2d 544, 548 (Fed. Cir. 1986). The ALJ recommended that if the Commission finds a violation of section 337, it should issue an LEO against Carsem’s infringing exposed die pad MLP Micro, MLP Quad, and MLP Dual products. Recommended Determination (“RD”) at 391. The ALJ took into consideration that Amkor did not ask to exclude products that incorporate the accused devices, *i.e.*, so-called “downstream products,” and noted that Carsem and the IA do not believe that such relief would be appropriate. The ALJ stated that, accordingly, if a violation of Section 337 is found, an LEO should not include downstream products. *Id.* at 392.

Carsem notes that Amkor requested, and the ALJ recommended, an LEO against Carsem’s infringing products and agrees that, in the event a violation of Section 337 is found and

¹⁷ A Commission determination on whether Amkor satisfied the economic prong of the domestic industry requirement under section 337(a)(3)(C) would require a remand to the ALJ for additional fact-finding, which would further delay this investigation. The Commission views the added delay, burdens, and expenses that would be incurred by the parties and the Commission for further fact-finding to be unjustified given the investigation’s already lengthy procedural history and given the Commission’s determination that Amkor satisfied the economic prong of the domestic industry requirement under section 337(a)(3)(A).

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a remedy is not precluded by consideration of the public interest, a limited, rather than a general, exclusion order is appropriate. Carsem's Brief at 1. Carsem argues, however, that any order should specify "products" that infringe claims 2-4 and 21-23 of the '277 patent and not make reference to general MLP product types inasmuch as many MLP products manufactured and sold by Carsem were found not to infringe the '277 patent. Carsem further agrees with the ALJ's recommendation that a certification provision should be included in any limited exclusion order.

Amkor agrees that the Commission should issue an LEO that incorporates the recommended certification provision. Amkor's Brief at 7. Amkor submits that the LEO it proposed properly identifies the excluded products as those that infringe claims 2-4 and 21-23 of the '277 patent rather than identifying the products by model number, which would be contrary to Commission practice and would encourage the Respondents to merely change the product numbers. Amkor's Brief at 8 (citing *Certain Hardware Logic Emulation Systems and Components Thereof*, Inv. No. 337-TA-383, USITC Pub. No. 3089, Comm'n Op., 1998 ITC LEXIS 138, *31-32 (Mar. 31, 1998) (noting that it is long-standing Commission practice to direct remedial orders to all covered products rather than to specific models); *Certain Cellular Radiotelephones and Subassemblies and Component Parts Thereof*, Inv. No. 337-TA-297, USITC Pub. No. 2361, Comm'n Op., 1991 ITC LEXIS 117, *57 (Aug. 29, 1989) (exclusion orders should not be limited to specific models because this "merely invites an unscrupulous respondent to change the model numbers to circumvent the order"))).

The IA concurs in the ALJ's recommendation. The IA notes that complainant has requested only an LEO, did not request a cease and desist order, and did not request that downstream products (*i.e.*, "products containing same") be covered by the limited exclusion

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order. IA's Brief at 9 (citing Compl. Post-Hearing Br. at 156-58). The IA further notes that a certification provision is now standard in Commission exclusion orders, *id.* (citing Attachment A at 3), and this investigation does not appear to present any special circumstances that would warrant departing from the standard procedure.

The Commission has determined, consistent with the ALJ's recommendation, that the appropriate remedy in this investigation is an LEO directed to encapsulated integrated circuit devices that infringe one or more of claims 2-4 and 21-23 of the '277 patent that are manufactured abroad by or on behalf of, or imported by or on behalf of, respondents Carsem or any of their affiliated companies, parents, subsidiaries, or other related business entities, or their successors or assigns. The Commission notes that the ALJ found that certain products do not infringe the '277 patent and the Commission has affirmed this finding. *See supra* at 7. Those non-infringing products are identified in the 2005 Remand ID at 13-14, 23-24.

2. Cease and Desist Order ("CDO")

Under Section 337(f)(1), the Commission may issue a cease and desist order in addition to, or instead of, an exclusion order. RD at 392 (citing *Certain Crystalline Cefadroxil Monohydrate*, Inv. No. 337-TA-293, Commission Opinion, 15 U.S.P.Q.2d 1263, 1277-79 (U.S.I.T.C. 1990)). Complainant does not seek such relief in the present case, RD at 392, and Carsem and the IA agree that such relief should not be granted. Carsem's Brief at 1; IA's Brief at 9. The ALJ recommended no cease and desist order.

We agree with the ALJ's recommendation and determine not to issue a cease and desist order in this investigation.

B. The Public Interest

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Under the statute, before issuing a remedy for a violation of Section 337 the Commission must consider the effect of the proposed remedy on public interest factors including “public health and welfare, competitive conditions in the United States economy, the production of like or directly competitive articles in the United States, and United States consumers.” 19 U.S.C. §§ 1337(d) and (f). See *Spancion, Inc. v. Int’l Trade Comm’n*, 629 F.3d 1331, 1358 (Fed. Cir. 2010);¹⁸ *Certain Ink Jet Print Cartridges and Components Thereof*, Inv. No. 337-TA-446, Comm’n Op. at 14 (October 2002). The parties dispute whether consideration of the public interest factors precludes the issuance of an LEO in this investigation. See Amkor’s Brief at 12, Carsem’s Brief at 2-24, IA’s Brief at 12-14.

¹⁸ The Court noted that:

By statute, the Commission is required to issue an exclusion order upon the finding of a Section 337 violation absent a finding that the effects of one of the statutorily-enumerated public interest factors counsel otherwise. 19 U.S.C. § 1337(d)(1) (“If the Commission determines, as a result of an investigation under this section, that there is a violation of this section, it *shall* direct that the articles concerned, imported by any person violating the provision of this section, be excluded from entry into the United States, *unless*, after considering the effect of such exclusion upon the public health and welfare, competitive conditions in the United States economy, the production of like or directly competitive articles in the United States, and United States consumers, it finds that such articles should not be excluded from entry.”) (emphases added in the original). The enumerated public interest factors include: (1) the public health and welfare; (2) competitive conditions in the United States economy; (3) the production of like or directly competitive articles in the United States; and (4) United States consumers. *Id.*

Spancion, 629 F.3d at 1358.

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The Commission requested briefing on the following question regarding the public interest:

Whether for purposes of our public interest analysis, there are products comparable to the subject articles that are noninfringing products in the U.S. market.

Commission Notice at 4.

Amkor submits that Amkor and its licensees have the capacity and technical capability to supply the volume of articles subject to the proposed exclusion order within a commercially reasonable time in the United States. Amkor's Brief at 13 (citing Declaration of Tony Panczak ¶5). Amkor contends that it is one of the world's largest semiconductor packaging providers and competes directly with Carsem. *Id.* (citing Ex. A, International Directory of IC Packaging Foundries, CHIP SCALE REV., Mar. 2013, at 27 (stating that both Amkor and Carsem provide "PN" packages which corresponds to MLF and QFN packages)).¹⁹

Carsem argues that there are no comparable non-infringing alternatives for its standard QFN packages. Carsem's Responses at 11. Carsem argues that the demand by U.S. semiconductor device manufacturers for the standard QFN packages is very high,²⁰ and that they are being specified for many of the critical components and functions of mobile consumer electronic products, including integrated circuits ("IC's") for Wi-Fi modules, RF amplifiers (for cellular functions), and power management. *Id.* (citing Koscal Decl. ¶¶ 12-13.) Carsem argues

¹⁹ The products that are covered by the proposed LEO are generally known as "quad flat no-lead" (*i.e.*, QFN) or "Micro LeadFrame" (*i.e.*, MLF) packages.

²⁰ Glenn Koscal, Carsem's Director of New Package Development, stated that "Approximately 85-90% of the current customer demand for QFN packages is for standard leadframe-based QFN packages of the type that are the subject of the Investigation and of the JEDEC MO-220 and MO-229 standards." Koscal Decl. ¶ 12.

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that while several other technologies for producing leadless IC packages exist, they are extremely expensive and in many cases have inferior size and performance characteristics compared to the standard QFN packages. *Id.* at 12.

In contrast with Carsem, the IA submits that there are many alternatives to Carsem's QFN packages available in the United States. For example, Amkor itself produces such packages under the name MLF. IA's Brief at 11 (citing CX-15, CX-19). The IA further submits that Carsem also produces QFN packages that have been found not to infringe the relevant claims of the '277 patent. *Id.* (citing Remand ID at 13-14, 24 (listing products found to infringe and not infringe)). The IA also points out that Amkor had at the time of the hearing licensed several other companies. *Id.* (citing CX-220C; CX-221C; CX-222C; CX-516C). The IA further points out that "[s]imilarly, at the time of the hearing, Fujitsu and Matsushita apparently made and licensed alternative QFN products." *Id.* (citing Jewler, Tr. at 181-85; T. Davis, Tr. at 319-21, 502-06, 523). The IA states that "even beyond the evidence presented at the hearing, it also appears that other large semiconductor packaging subcontractors currently produce QFN packages, including ASE (Advanced Semiconductor Engineering) (*see* www.asetwn.com.tw/content/2-4-4-1.html), SPIL (Silicon Precision Industries) (*see* www.spil.com.tw/products/?u=2*2), and STATS ChipPAC (*see* <http://www.statschippac.com/services/packagingservices/qfn.aspx>)." *Id.* The IA notes that therefore, "even without considering other categories of semiconductor packaging (such as small outline packages or ball grid arrays), there appear to be alternative QFN products available in the U.S. market that are either licensed, have been found not to infringe, or have not been accused of infringement." *Id.*

We find that, based on the record, there are noninfringing products comparable to the

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subject articles in the U.S. market. The IA points out numerous noninfringing alternatives to the subject articles. IA's Brief at 11; IA's Reply at 9. As the IA notes, the evidence presented by Amkor shows that it is the second largest semiconductor packaging subcontractor in the world, and its two licensees (STATS ChipPac and UTAC) are the fourth and sixth largest. IA's Reply at 10 (citing (Compl. Br., Ex. E, at 15-4)). The record also shows that Carsem itself produces non-infringing QFN packages. (Remand ID at 13-14, 24). The record further shows that the other largest packaging subcontractors (ASE and SPIL) produce QFN packages that have not been accused of infringement. IA's Brief at 11; IA's Reply at 10.

Carsem also argues that Amkor is not capable of expeditiously increasing production of QFNs. Carsem contends that it would take Amkor at least 6 months to increase its capacity of QFNs to replace the MLPs it seeks to exclude, and at least another 6 months, if not longer, for its customers and their customers to fully test and qualify Amkor's MLF replacements for use in their products. Carsem's Reply at 22. In support, Carsem refers to the Declaration of Glenn Koscal ¶¶ 11-13.

The portion of the Koscal Declaration cited by Carsem does not, however, provide support for Carsem's argument. Koscal states: "To replace a current JEDEC-compliant QFN with one or more alternative package technologies would require retesting and requalification of the new package type, which would take a minimum of 6 months." Koscal Decl. ¶ 13. This statement is, however, unavailing for the purpose of Carsem's argument. As the IA correctly points out, "the question is not, as Carsem would have it, what the effect of excluding all QFN products would be. The fact that various other manufacturers do not have licenses from Amkor does not convert their products into infringing products that would be covered by an exclusion

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order. Rather, the articles subject to exclusion (the subject articles) are Carsem's QFN products that infringe claims 2-4 and 21-23 of the '277 patent, and the public interest analysis therefore focuses on the effect of excluding those articles, including whether there are any available alternatives." IA's Reply at 9.

Amkor points out that it has existing excess capacity and, if needed, has the ability to expand to meet a larger production capacity to replace the volume of articles subject to exclusion and to fulfill future demand for the products. Amkor's Brief at 13 (citing Declaration of Tony Panczak ¶ 7). As Amkor notes, exclusion of Carsem's infringing products would not require Amkor "to replace a current JEDEC-compliant QFN with one or more alternative package technologies." Amkor will have to increase the production of the same type of packages, *i.e.*, MLFs. Therefore, there will be no need for Amkor to "retest and requalify" the new package type, because it would be the same package type that Amkor has been already manufacturing, *i.e.*, MLFs, although in increased amounts. Consequently, there will be no need to expend an additional 6 months for such retesting and requalification. Accordingly, the record shows an ample supply of MLFs and available capacity that can be expanded to meet U.S. demand. Likewise, the record indicates that Amkor has the financial resources to make such an expansion, if needed, to fulfill consumer demand for the products, and that Amkor has expanded its manufacturing capacity in the past in response to an increase in consumer demand. *See* Amkor's Brief at 14.²¹

²¹ Amkor points out, as an example, that in 2012, it "responded to a substantially increased customer demand forecast and raised its capital expenditures from its initial plans by approximately \$250M." Amkor's Brief at 14 (citing Declaration of Tony Panczak § 9; Ex. C, Top OSATS Raise 2012 CAPEX with Semiconductor Test Focus, Solid State Technology, May

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Amkor and the IA also provide evidence that at least two of Amkor's licensees, STATS ChipPac Ltd. and UTAC Ltd., can satisfy customer demand for the excluded products.²² Carsem notes that both STATS and UTAC make not only "PN" packages (molded plastic no-lead packages), which includes QFN-type packages, but also many other kinds of packages. There is no evidence that these two companies would not be capable of extending their production of QFN-type packages. Even if Amkor's license with STATS was set to expire in August 2013, as Carsem contends, that does not mean that Amkor and STATS cannot enter into another license agreement.

In sum, we find, based on the record, that there are numerous comparable alternatives to Carsem's infringing QFN products available in the U.S. market. As such, our review of the record does not indicate potential adverse effects on competitive conditions in the United States or U.S. consumers with regard to adequate non-infringing sources of supply.

Carsem further argues that "the '277 patent is standard essential and subject to FRAND commitments" and, therefore, "[i]mposing an exclusion order barring Carsem's standardized products from entry into the United States would harm competition and consumers in the United States." *See* Carsem's Brief at 3, 4-24. Carsem contends that Amkor has breached its

1, 2012).

²² Amkor submits that STATS ChipPac Ltd. and UTAC Ltd. are among the largest providers of packaging services in the industry and provide leadframe products that are directly competitive with those of Carsem. Amkor's Brief at 14 (citing Declaration of Tony Panczak ¶ 11; Ex. A at 33-34 (stating that both STATS and UTAC provide "PN" packages which corresponds to MLF and QFN packages); Ex. E, Rob Lineback et al., *The McClean Report 2012*, ICINSIGHTS.COM at Fig. 15-3 (Jan. 2012) (showing STATS ChipPac Ltd. as the fourth largest OSAT service provider with a net revenue of \$1.69B in 2011 and UTAC Ltd. as the sixth largest OSAT service provider with a net revenue of \$800M in 2011)); *see* also IA's Reply at 9-10.

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obligations to license the '277 patent, which Carsem believes is "standard essential," on FRAND terms and that, because of the importance of standard setting, an exclusion order would therefore be harmful to competitive conditions and U.S. consumers. *See* Carsem's Brief at 21-24.

The record, however, shows that the '277 patent is not essential to the practice of the JEDEC MO-220 and MO-229 standards, and also shows that Amkor has not breached any obligations to JEDEC.^{23, 24}

²³For the Commission's disposition of Carsem's affirmative defenses and other issues in connection with the Commission's determination of a Section 337 violation, *see supra* Part IV. The Commission sets forth its analysis of the statutory public interest considerations relating to the limited exclusion order herein in Part V.B. of this Opinion.

²⁴Commissioner Aranoff joins the Commission's decision today but writes separately to clarify one aspect of her public interest analysis.

Specifically, the Commission found above with respect to Carsem's affirmative defenses that Carsem failed to establish either (1) that the '277 patent is essential to practice the JEDEC MO-220 and MO-229 standards; or (2) that Amkor has a duty to license the '277 patent on FRAND terms. In addressing the statutory public interest factors, however, Carsem focuses on the asserted harm to U.S. consumers and competition in the U.S. market it claims would result from issuance of an exclusion order where complainant's asserted patent is a FRAND-encumbered SEP. Because Carsem failed at the violation stage to prove the factual predicates that underlie this public interest argument, Carsem is implicitly asserting that the Commission can consider these same factual issues a second time in the context of public interest and reach a different conclusion.

Commissioner Aranoff believes that the Commission's approach to such arguments should be guided by principles of finality (including waiver and estoppel) and due process. Parties to a section 337 investigation who wish to raise arguments or present evidence concerning (1) whether a patent is standard essential; (2) whether a complainant made and/or fulfilled its obligations pursuant to FRAND commitments; or (3) whether a respondent/implementer was a willing licensee should do so in the violation phase of the investigation by raising one or more FRAND-based affirmative defenses. When considering affirmative defenses to patent infringement, the Commission applies the same law as would a district court. *See Lannom Mfg. Co. v. Int'l Trade Comm'n*, 799 F.2d 1572, 1577-78 (Fed. Cir. 1986). Commentators have suggested and the district courts are currently considering a number of potential FRAND-based affirmative defenses. *See, e.g., Barnes & Noble, Inc. v. LSI Corp.*, 849 F.Supp.2d 925 (N.D. Cal. 2012). If the Commission were to find a FRAND-based

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The evidence of record is clear that the ‘277 patent is not essential to the practice of the JEDEC MO-220 and MO-229 standards. Carsem’s expert, Dr. Fehr, testified at the hearing as to his view that the JEDEC MO-220 and MO-229 standards can only be complied with by using the Amkor patents. Fehr Witness Statement, RX-1494C, at 292-95. His testimony linking the ‘277 patent to the JEDEC standards, however, was explicitly tied to Amkor’s proposed claim constructions, which were rejected by the Commission. *Id.* at 292 (“I have formed an opinion, and in my opinion, as Amkor is interpreting and asserting the claims, it would not be possible to produce a viable semiconductor package that complies with the MO-220 or MO-229 standards without infringing one or more claims of the ‘277, ‘728 and ‘356 patents.”). Further, Dr. Fehr’s testimony did not make reference to the claims of the ‘277 patent and how these might relate to

affirmative defense is proven, the Commission could find no violation of section 337 and would not need to reach the issues of remedy and public interest. When, as in this investigation, the parties have a full and fair opportunity to litigate these three SEP-related issues, the respondent fails to prove a FRAND-based affirmative defense, and the Commission finds a violation of section 337, Commissioner Aranoff believes that the Commission should not consider the same three issues a second time, in the context of its public interest inquiry.

If the Commission were to routinely revisit the facts underlying a FRAND affirmative defense in the context of its public interest analysis, this would raise several concerns. Could the Commission, consistent with its obligations under the APA, apply a different burden of proof or consider different evidence on the same issue in the violation and remedy phases of an investigation? Would parties have an incentive to waive arguments or withhold evidence at the violation stage so as to raise them under a less exacting standard in the remedy phase? Are there other affirmative defenses the Commission might reconsider at the remedy stage? (For example, one could argue it is contrary to the public interest to issue a remedy based on infringement of a patent that was obtained through inequitable conduct, even if the affirmative defense of inequitable conduct failed.) While there may be hypothetical situations that could warrant a second look at facts underlying a FRAND issue that was or could have been litigated before the ALJ in the violation phase, Commissioner Aranoff believes that they would be rare and are not present in this investigation.

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the JEDEC MO-220 and MO-229 standards. *Id.* at 292-95. Amkor vigorously disputed that the ‘277 patent was essential to the MO-220 or MO-229 standards and submitted evidence distinguishing the claims of the ‘277 patent from these JEDEC standards. *See* Amkor’s PostHearOpen at 149-50. *See also* CX-88C at 1-2; Comley, Tr. 2502:2-4; Bird, Tr. 3245:9-20; Kelly, Tr. at 2042:1-7; CX-1716C (Fehr) at 743:20-746:1, 746:22-748:19.

Additionally, Carsem’s Director of New Package Development, Glenn Koscal, confirmed that less than all standard-compliant products are covered by the ‘277 patent. *See* Carsem’s Brief, Koscal Decl., ¶ 9 (“Based on my knowledge of the internal and external structures of the QFN package, the related JEDEC standards, the cost considerations related to producing QFN packages, and the manufacturing processes and technologies commonly in use in the semiconductor packaging industry, to the best of my knowledge I confidently estimate that about 85-90% of the MO-220 and MO-229 JEDEC compliant QFN packages currently are being produced using the Amkor method as described in the ‘277 patent.”). This testimony therefore demonstrates that the ‘277 patent is not necessary to practice the MO-220 and MO-229 standards. Indeed, several of Carsem’s JEDEC-compliant products that were accused in this investigation were found not to infringe the ‘277 patent. 2005 Remand ID at 13-14; 23-24. Thus, based on the record evidence, the Commission finds that the ‘277 patent is not essential to the MO-220 or MO-229 standards.²⁵

The conclusion that the ‘277 patent is not essential to the JEDEC standards also

²⁵ Commissioner Aranoff observes that the testimony and ALJ findings described in this paragraph, which demonstrate that the ‘277 patent is not necessary to practice the MO-220 and MO-229 standards, further bolster the Commission’s decision that the defenses of equitable estoppel and legal estoppel do not apply in this case.

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undermines the argument that Amkor's declaration to JEDEC imposes FRAND obligations on Amkor.^{26, 27} As Carsem notes, the FRAND obligation is inextricably tied to the contention that

²⁶ For purposes of the analysis of the statutory public interest factors in a case such as this one, Commissioners Pinkert, Broadbent, and Kieff generally recognize that either of the following two scenarios could give rise to a RAND obligation relevant to those factors: (1) where the patent holder has made an express RAND commitment to license or (2) where a RAND commitment to license arises by implication from the course of conduct of the patent holder, such as might result from the patent holder having represented the patent to be essential to an industry standard. The facts here, however, show that the '277 patent is not essential to a JEDEC standard and that the patent holder (Amkor) has not represented it as essential to a JEDEC standard.

Even if finding a RAND obligation in this case were warranted, the Commission would stand only at the threshold of the public interest analysis. The Commission would then have to assess the substance of the obligation and whether Amkor's licensing conduct, considered in light of Carsem's conduct, is inconsistent with it. The Commission would also have to evaluate the totality of the evidence, including the evidence of the parties' conduct, regarding the impact of a Section 337 remedy on the public interest. The facts, however, demonstrate that Amkor has not acted inconsistently with the alleged obligation. Despite an overture from Amkor, it was Carsem that evidenced no interest in pursuing a licensing arrangement with respect to the '277 patent. CX-207-C and CX-208-C; Comley, Tr. 2511:15-2512:5. Putting this in terms of contemporary discussions about patent rights and competition, the facts suggest a case of hold-out by the potential licensee rather than one of hold-up by the patent holder.

Finally, Commissioners Pinkert, Broadbent, and Kieff note that, in a Section 337 investigation, the Commission is required to make several different types of determinations. In its analysis of whether there is a violation, the Commission must, among other things, consider all legal and equitable defenses. In any analysis of remedy, the Commission must consider the statutory public interest factors. Undergirding all of this are vital procedures that safeguard due process rights and prevent undue prejudice to any party and to the agency itself. These procedures enable each of the various determinations within the investigation to be as grounded as possible in a consistent and adequately tested set of facts. They help ensure that all of the relevant facts and arguments are developed on the record in a timely manner and, where appropriate and practicable, in formal adjudication by the ALJ.

²⁷ Chairman Williamson and Commissioner Johanson do not join the preceding footnote. This decision does not mean that they either agree or disagree with particular points made in that footnote, but that they do not view it necessary to opine on these issues in resolving the dispute before us.

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the '277 patent is essential to the JEDEC standards. Carsem's Brief at 17. Accordingly, because the '277 patent is not essential to practice the JEDEC MO-220 and MO-229 standards, the argument that the public interest would be adversely impacted in this investigation on the ground that the '277 patent is a "standard essential RAND-encumbered patent" is insupportable.

Accordingly, based on the record before the Commission, we find that the '277 patent is not "standard essential," that Amkor did not breach any alleged obligations to license the '277 patent on FRAND terms, and that an exclusion order would therefore not be harmful to competitive conditions and U.S. consumers.

Furthermore, there is no evidence in the record of any potential adverse impact on public health and safety or U.S. production of like or directly competitive articles, nor do the parties raise any such issues with respect to these public interest factors.

Based on the foregoing, we determine that the issuance of an LEO in this investigation is appropriate. The record reflects that the U.S. demand for the products that are covered by the proposed LEO could be met by entities other than Carsem. We further determine that an LEO would not have any adverse effect on the public health, safety, or welfare; that it would not have a material adverse effect on competitive conditions; that it would not adversely impact the production of like or directly competitive products; and that it would not adversely impact U.S. consumers. *See* IA's Brief at 10-14; Amkor's Brief at 10-15.

C. Bond During the Period of Presidential Review

In his RD, the ALJ observed that if the Commission enters an exclusion order or cease and desist order, parties may continue to import and sell their products during the pendency of the Presidential review under a bond in an amount determined by the Commission to be

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“sufficient to protect the Complainants from any injury.” RD at 394 (citing [19 U.S.C. § 1337(j)(3)]; 19 C.F.R. § 210.50(a)(3)). The ALJ noted that the Commission frequently sets the bond by attempting to eliminate the difference in sales prices between the patented domestic product and the infringing product. *Id.* (citing *Certain Microsphere Adhesives, Process for Making Same, and Products Containing Same, Including Self-Stick Repositionable Notes*, Inv. No. 337-TA-366, Comm’n Op. at 24, 1996 WL 1056095 (January 16, 1996), *aff’d sub nom. Minnesota Mining & Manufacturing Co. v. U.S. Int’l. Trade Comm.*, 91 F.3d 171 (Fed.Cir. 1996) (Table)).

The ALJ further noted that in the absence of reliable price information, the Commission has used other methods to determine an appropriate bond. The ALJ stated that, for example, where a price comparison is unworkable, the Commission has determined that a bond of 100 percent is appropriate, *id.* (citing *Certain Variable Speed Wind Turbines and Components Thereof*, Inv. No. 337-TA-376, USITC Pub. No. 3003, Comm’n Op. at 27-28 and 40, 1996 WL 1056330 (September 23, 1996)) whereas in other instances, where a direct comparison between a patentee’s product and the accused product was not possible, the Commission has set the bond at a reasonable royalty rate, *id.* (citing *Certain Digital Satellite System (DSS) Receivers and Components Thereof*, Inv. No. 337-TA-392, USITC Pub. No. 3418, Initial and Recommended Determinations at 245, *vacated on other grounds*, Commission Determination (May 13, 1999), 2001 WL 535427 (October 20, 1997)). Based on the arguments of the parties and the record, the ALJ recommended that a bond in the amount of \$0.00025 per lead per device be required of Carsem’s imports during the Presidential review period. ID at 396.

Amkor agrees that the bond must be set in an amount determined by the Commission to

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be “sufficient to protect the complainant from any injury.” Amkor’s Brief at 15 (citing 19 U.S.C. § 1337(j)(3); 19 C.F.R. § 210.50(a)(3)). Amkor notes that here, the ALJ recommended that the bond be set at \$0.00025 per lead per device [[

]], and that the ALJ determined that this rate is “sufficient to protect the Complainant from any injury.” *Id.* (citing 2004 Final ID at 395-96). Amkor argues that this bond amount is supported by the record and consistent with Commission precedent, and that therefore the Commission should set the bond in the amount recommended by the ALJ.

Carsem argues that the ALJ, relying on [[

]]

The IA supports the ALJ’s bond recommendation. The IA states that the Commission has previously explained that “[w]e find it equitable to set the bond amount at a reasonable royalty based on [Complainant]’s own licensing agreements.” IA’s Brief at 15 (citing *Digital Televisions*, Commission Opinion at 19). The IA observes that here, the ALJ recommended a bond based on [[

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]] and that, as the ALJ recognized, a bond in this amount would presumptively be sufficient to protect Complainants from any injury during the two-month Presidential review period, *id.* (citing RD at 395-96).

We find that the record supports the ALJ's recommended bond amount. Accordingly, we set the bond at \$0.00025 per contact per device during the 60-day period of Presidential review. *See* 19 U.S.C. § 1337(j)(3).

VI. CONCLUSION

The Commission has determined that there has been a violation of section 337, and has further determined that the appropriate form of relief in this investigation is an LEO prohibiting the unlicensed entry for consumption into the United States of encapsulated integrated circuit devices that infringe one or more of claims 2-4 and 21-23 of the '277 patent that are manufactured abroad by or on behalf of, or imported by or on behalf of, respondents Carsem or any of their affiliated companies, parents, subsidiaries, or other related business entities, or their successors or assigns. The Commission has further determined that consideration of the public interest factors enumerated in section 337(d)(1) (19 U.S.C. § 1337(d)(1)) do not preclude issuance of the LEO. Finally, the Commission has determined to set the bond in the amount of \$0.00025 per contact per device imported during the period of Presidential review.

²⁸ The terms "contacts" and "leads" can be used interchangeably. *See e.g.* 2004 Final ID at 8 ("Extending out from the leadframe are peripheral metal contacts (also known as 'leads.')" (internal citations omitted). *See also id.* at 395.

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By order of the Commission

A handwritten signature in black ink, appearing to read "Lisa R. Barton". The signature is stylized and cursive.

Lisa R. Barton
Secretary to the Commission

Issued: April 28, 2014

**CERTAIN ENCAPSULATED INTEGRATED CIRCUIT
DEVICES AND PRODUCTS CONTAINING SAME**

337-TA-501

CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **COMMISSION OPINION** has been served upon the following parties as indicated, on **April 28, 2014**.



Lisa R. Barton, Acting Secretary
U.S. International Trade Commission
500 E Street, SW
Washington, DC 20436

**ON BEHALF OF COMPLAINANT AMKOR
TECHNOLOGY, INC.:**

Wonjoo Suh, Esq.
SIDLEY AUSTIN LLP
1501 K Street, NW
Washington, DC 20005

Via Hand Delivery
 Via Overnight Mail
 Via First Class Mail
 Other: _____

**ON BEHALF OF RESPONDENTS CARSEM (M) SDN
BHD, CARSEM SEMICONDUCTOR SDN BHD, AND
CARSEM, INC:**

Louis Mastriani, Esq.
ADDUCI, MASTRIANI & SCHAUMBER, LLP
1133 Connecticut Avenue, NW 12th Floor
Washington, DC 20036

Via Hand Delivery
 Via Overnight Mail
 Via First Class Mail
 Other: _____