

Filed on behalf of: Yangtze Memory Technologies Company, Ltd.

Entered: June 6, 2025

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICRON TECHNOLOGY, INC.,
Petitioner,

v.

YANGTZE MEMORY TECHNOLOGIES COMPANY, LTD.,
Patent Owner.

Case PGR2025-00021
Patent 12,010,838

**PATENT OWNER'S
PRELIMINARY RESPONSE**

TABLE OF CONTENTS

I.	Introduction.....	1
II.	Background.....	5
A.	The '838 Patent (Ex. 1001)	5
B.	Prosecution History	8
C.	Person Having Ordinary Skill in the Art.....	8
D.	Claim Construction	9
III.	The Challenged Claims Recite a Specific Arrangement	9
IV.	Ground 1: The Petition Misrepresents Kim, Ignores the Claimed Specific Arrangement, and Fails to Demonstrate that Kim Renders Claims 1 and 12 Obvious.....	15
V.	Ground 3: The Petition Ignores the Claimed Specific Arrangement, Improperly Reads “First Portion” and “Second Portion” Out of the Claims, and Fails to Demonstrate that Lee Renders Claims 1 and 12 Obvious.....	26
VI.	Grounds 2, 4, and 5 Fail	32
VII.	Conclusion	33

TABLE OF AUTHORITIES**Page(s)****CASES**

<i>Becton, Dickinson & Co. v. Tyco Healthcare Grp. LP</i> , 616 F.3d 1249 (Fed. Cir. 2010)	10
<i>Engel Indus., Inc. v. Lockformer Co.</i> , 96 F.3d 1398 (Fed. Cir. 1996)	9, 12, 15
<i>Gaus v. Conair Corp.</i> , 363 F.3d 1284 (Fed. Cir. 2004)	10
<i>Henny Penny Corp. v. Frymaster LLC</i> , 938 F.3d 1324 (Fed. Cir. 2019)	19
<i>Intel Corp. v. Qualcomm Inc.</i> , 21 F.4th 801 (Fed. Cir. 2021)	29, 31
<i>Liberty Ammunition, Inc. v. United States</i> , 835 F.3d 1388 (Fed. Cir. 2016)	29, 30
<i>Regents of Univ. of Minn. v. AGA Med. Corp.</i> , 717 F.3d 929 (Fed. Cir. 2013)	15
<i>Rovi Guides, Inc. v. Comcast Cable Commc'ns, LLC</i> , 796 F. App'x 735 (Fed. Cir. 2020)	15
<i>TQ Delta, LLC v. Cisco Sys., Inc.</i> , 942 F.3d 1352 (Fed. Cir. 2019)	28
<i>Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.</i> , 853 F.3d 1272 (Fed. Cir. 2017)	29, 31
<i>Zoltek Corp. v. U.S.</i> , 815 F.3d 1302 (Fed. Cir. 2016)	19, 28

Exhibit List

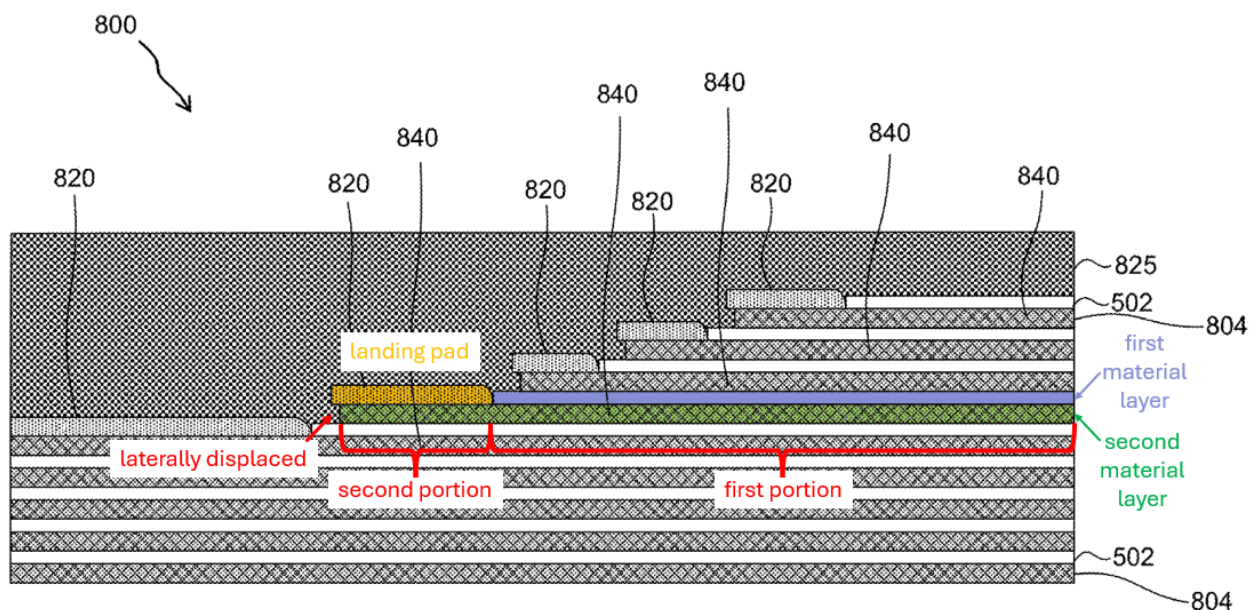
Exhibit	Description
2001	Defendants' Preliminary Invalidity Contentions and Document Production Accompanying Invalidity Contentions re YMTC II Asserted Patents (Patent Local Rules 3-3 and 3-4), <i>Yangtze Memory Technologies Company, Ltd. v. Micron Technology, Inc.</i> , No. 3:23-cv- 05792-RFL (N.D. Cal. Nov. 25, 2024) (excerpts)
2002	Civil Minutes, <i>Yangtze Memory Technologies Company, Ltd. v. Micron Technology, Inc.</i> , No. 3:23-cv-05792-RFL (N.D. Cal. Sept. 18, 2024), ECF No. 141
2003	Order Granting Stipulation to Extend Certain Deadlines Pursuant to Patent L.R. 4-2 and the Scheduling Order (ECF No. 141) Pursuant to Civil Local Rule 6-1(b), <i>Yangtze Memory Technologies Company, Ltd. v. Micron Technology, Inc.</i> , No. 3:23-cv-05792-RFL (N.D. Cal. Jan. 8, 2025), ECF No. 194
2004	Order Granting Motion to Stay Case Pending <i>Inter Partes</i> Review, <i>Yangtze Memory Technologies Company, Ltd. v. Micron Technology, Inc.</i> , No. 3:23-cv-05792-RFL (N.D. Cal. Mar. 14, 2025), ECF No. 243
2005	Plaintiff/Counterclaim Defendant Yangtze Memory Technologies Company, Ltd.'s and Counterclaim Defendant Yangtze Memory Technologies, Inc.'s Opposition to Micron's Motion to Stay Case Pending <i>Inter Partes</i> Review and Post-Grant Proceedings, <i>Yangtze Memory Technologies Company, Ltd. v. Micron Technology, Inc.</i> , No. 3:23-cv-05792-RFL (N.D. Cal. Feb. 3, 2025), ECF No. 221
2006	Declaration of Konstantinos Giapis ("Giapis")
2007	<i>Curriculum Vitae</i> of Konstantinos Giapis
2008-2017	RESERVED

Exhibit	Description
2018	Order Granting Motion to Consolidate, <i>Yangtze Memory Technologies Company, Ltd. v. Micron Technology, Inc.</i> , No. 3:23-cv-05792-RFL (N.D. Cal. Aug. 21, 2024), ECF No. 106

I. Introduction

Patent Owner Yangtze Memory Technologies Company, Ltd. ("YMTC") respectfully submits this Preliminary Response to the Petition for Post Grant Review of U.S. Patent 12,010,838 ("838 patent" (Ex.1001)). As explained below, Petitioner has failed to carry its burden to show a reasonable likelihood that any challenged claim is unpatentable. Thus, the Board should deny the Petition and no PGR proceeding should be instituted.

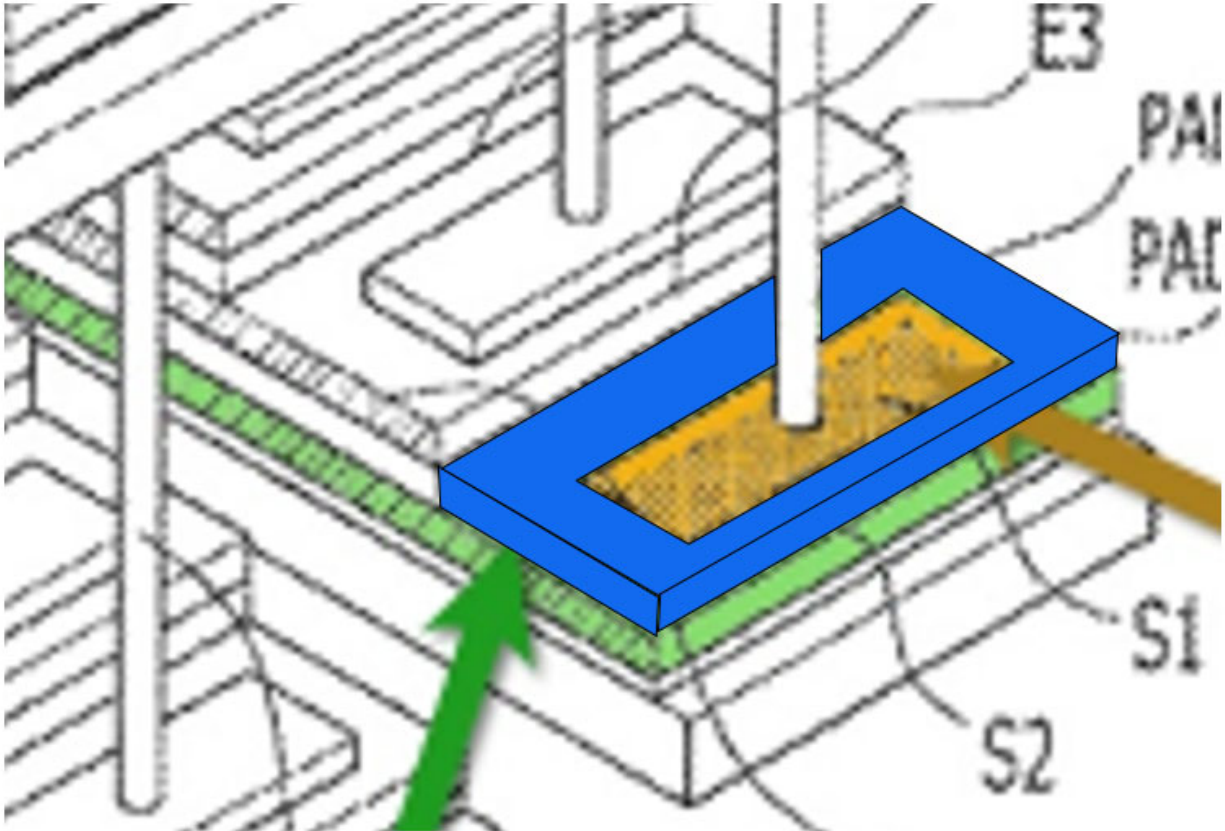
The '838 patent describes and claims a novel staircase structures for 3D memory devices. The claimed staircase structures of the '838 patent have a specific arrangement of, and relationships between, a first material layer, a second material layer, and a landing pad. This arrangement and these relationships are shown below.



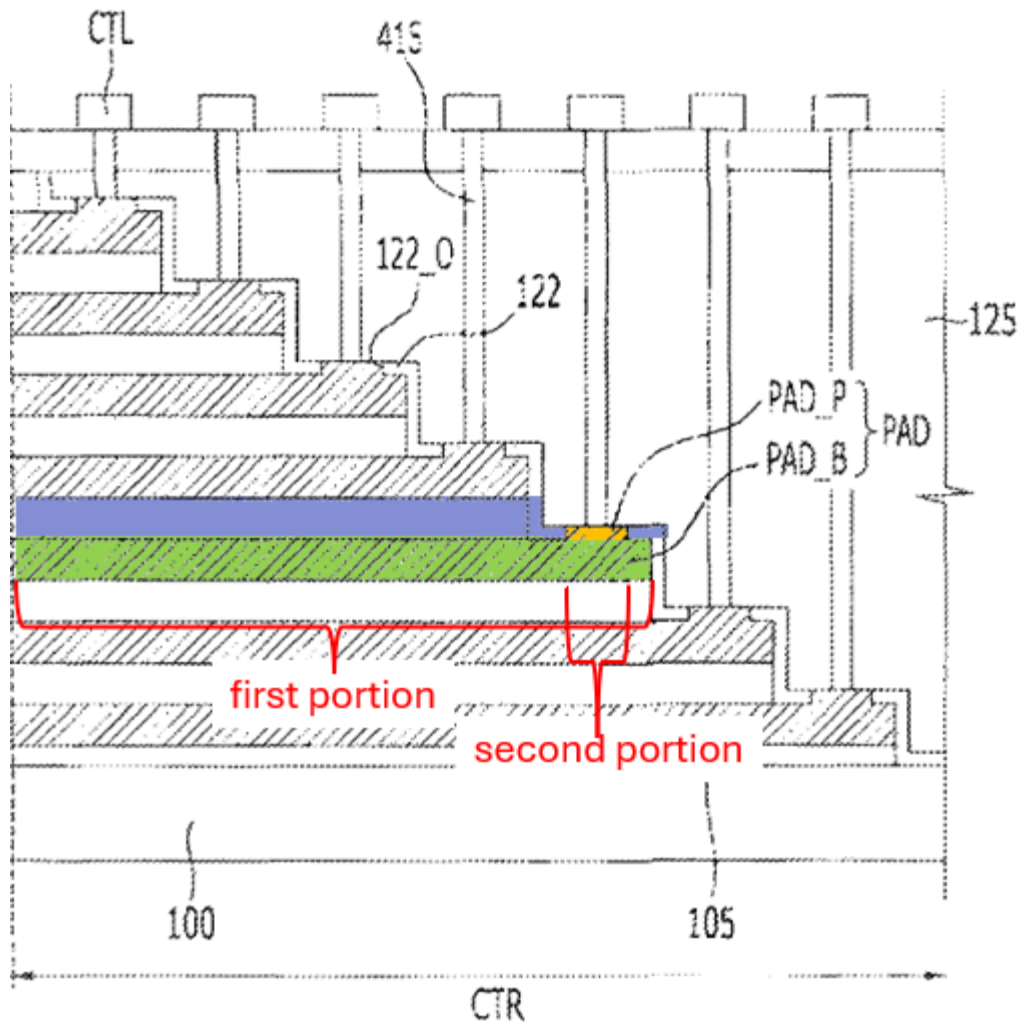
'838 patent at Fig. 8 (annotated). Specifically, both the first material layer (blue) and the landing pad (orange) are disposed over the second material layer (green), but over separate and distinct portions of the second material layer (identified as the first portion and second portion respectively above). The first portion and second portion are not mere labels—they are part of the claims' recitation of the novel structure that defines specific structural relationships between the first material layer, the second material layer, and the landing pad, such that the landing pad is in contact with the first material layer on one side, and laterally displaced from the end of the second material layer on the other side.

The Petition presents five grounds of purported invalidity, but the Board need only review Grounds 1 and 3 to determine that the Petition fails. The remaining grounds challenge dependent claims, but otherwise do not address independent claims 1 and 12. Thus, the Petition's failings as to Grounds 1 and 3 are fatal to the entire Petition.

For both Grounds 1 and 3, the prior art does not show or render obvious the specific arrangement described above that is claimed in independent claims 1 and 12 of the '838 patent. For Kim (Ex.1005) (Ground 1), the Petition misrepresents Kim's structure and ignores that the first material layer surrounds the landing pad and extends to the end of the second material layer as shown below—entirely unlike the '838 patent's structure.



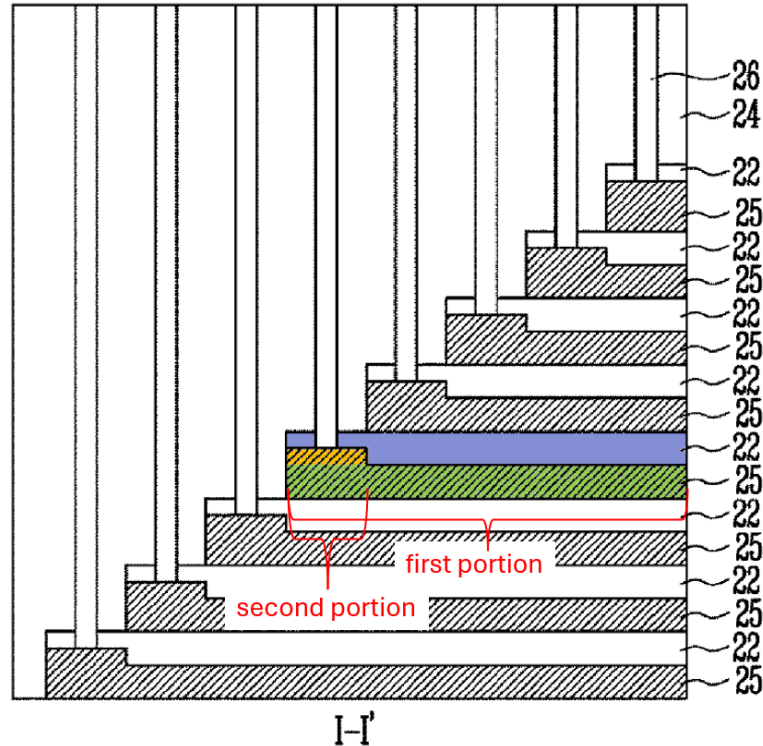
Instead of taking Kim's teachings as a whole, the Petition relies on arbitrary and unexplained labels of Kim's figures to suit its hindsight-driven obviousness arguments. As properly understood, Kim, at best, shows only the below arrangement where landing pad (orange) cannot be laterally displaced from the second portion of the second material layer because the landing pad is tightly surrounded by the first material layer (blue), leaving the second portion coextensive with the landing pad.



Kim at Fig. 4B (annotated).

Likewise, Lee (Ex.1006) (Ground 3), at best, shows only the below arrangement where there are no distinct first and second portions of the second material layer. Instead, they are overlapping and the “first portion” is not a “portion” at all because it extends over the *entirety* of the second material layer.

FIG. 7B



Lee at Fig. 7B (annotated). Here too, the Petition relies on Petitioner's expert's attempt to sidestep the claims' requirements by resorting to arbitrary and hindsight-driven labels unrelated to the structures in Lee.

But Petitioner's expert's arbitrary labels fail to establish that the prior art discloses every limitation and renders the claim as a whole obvious. The Board should deny the Petition.

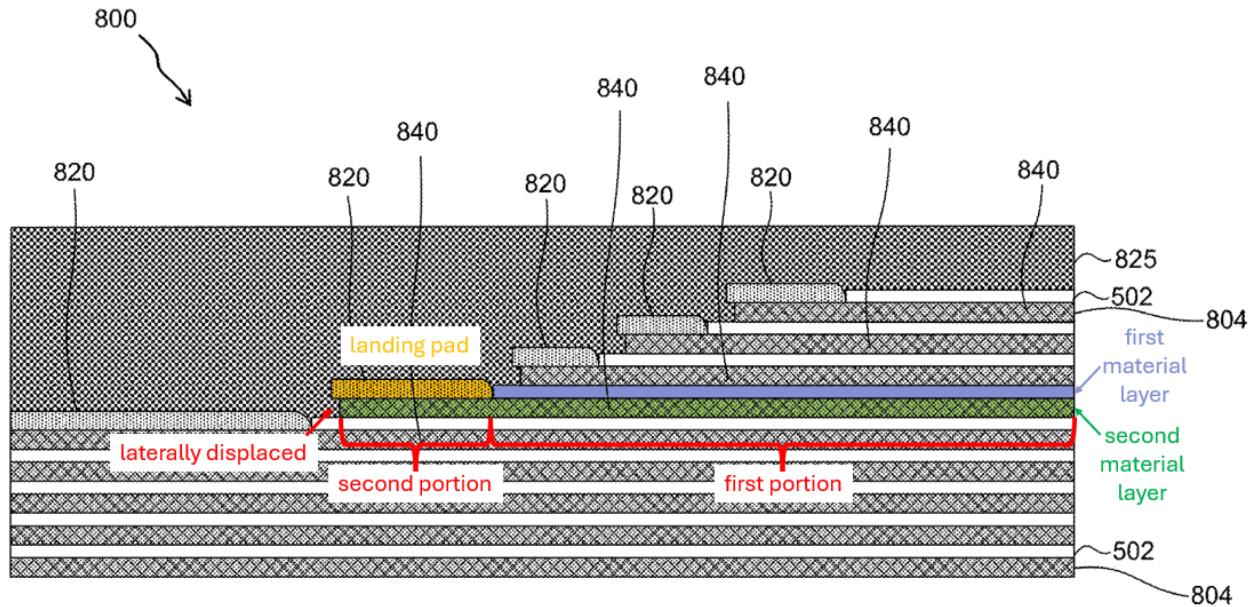
II. Background

A. The '838 Patent (Ex. 1001)

The '838 patent discloses and claims novel semiconductor memory structures with “a staircase structure for a memory device” that “provide[s]

numerous benefits including, but not limiting to, yield and manufacturing cost improvements.” ’838 patent at 1:39-45. The claimed “staircase structure” has “a plurality of layer stacks, where each layer stack includes a first material layer disposed over a first portion of a second material layer.” *Id.* at 1:47-50, Fig. 8. “The staircase structure further includes a plurality of landing pads . . . where each landing pad is disposed over a second portion of the second material layer of a respective layer stack.” *Id.* at 1:50-54, Fig. 8. Each landing pad “is adjacent to a respective side of the first material layer” and the other side is displaced from a side surface of the second material layer. *Id.* at 1:54-57, Fig. 8.

The ’838 patent details the process by which its novel structure is formed. *See id.* at 6:4-13:13, Figs. 1-9. At the end of this process, the ’838 patent’s novel structure, including as recited in claims 1 and 12, is formed such as shown in Figure 8, annotated below.



'838 patent at Fig. 8 (annotated).

As shown, a first material layer (blue) is disposed over a first portion of a second material layer (green), while a landing pad (orange) is disposed over a second portion of the second material layer (green). *See* '838 patent at 1:46-54, 13:47-51, 14:41-45; Giapis (Ex.2006) ¶29. Additionally, the left side surface of the landing pad (orange) is laterally displaced from the left side surface of the second portion of the second material layer (green). *See* '838 patent at 1:54-57, 13:50-56, 14:44-50; Giapis ¶30. Furthermore, the first portion of the second material layer is distinct and separate from the second portion of the second material layer. *See* Giapis ¶¶29, 33, 36. This is part of the specifically claimed structural relationships between the first material layer, the second material layer, and the landing pad. The claims also recite that the right side surface of the

landing pad (orange) is in contact with the first material layer (blue)—that interface defines the boundary between the “first portion” and the “second portion” of the second material layer below. *See* '838 patent at 1:54-57, 13:50-56, 14:44-50; Giapis ¶¶30, 33, 42.

B. Prosecution History

For brevity, YMTC does not address the entirety of the prosecution history in this Preliminary Response. YMTC's decision not to address the prosecution history here should not be understood as agreement or acquiescence with the statements made by Petitioner regarding the prosecution history. *See* Pet. 18-19. Aspects of the prosecution history are discussed in sections below.

C. Person Having Ordinary Skill in the Art

The Petition asserts that a person of ordinary skill in the art in the field of the '838 patent would have had a bachelor's degree in electrical engineering or a similar discipline, along with 2-3 years of professional experience working with (e.g., researching, designing, or teaching) 3D memory devices, or an equivalent level of skill, knowledge, and experience (e.g., an advanced degree may substitute for professional experience). Pet. 21. YMTC takes no position on the level of ordinary skill in the art for the purposes of this Preliminary Response only, as the Petition has failed to establish a reasonable likelihood of prevailing under any

reasonable definition of a person having ordinary skill in the art (“POSITA”).

Giapis ¶¶21-22.

D. Claim Construction

The Petition does not identify any terms for construction. Pet. 20-21. For purposes of this Preliminary Response, YMTC does not believe any terms require construction for the Board to determine that institution is not warranted.¹ Under the plain and ordinary meaning, where each claim term is properly given meaning, the Petition fails to demonstrate obviousness.

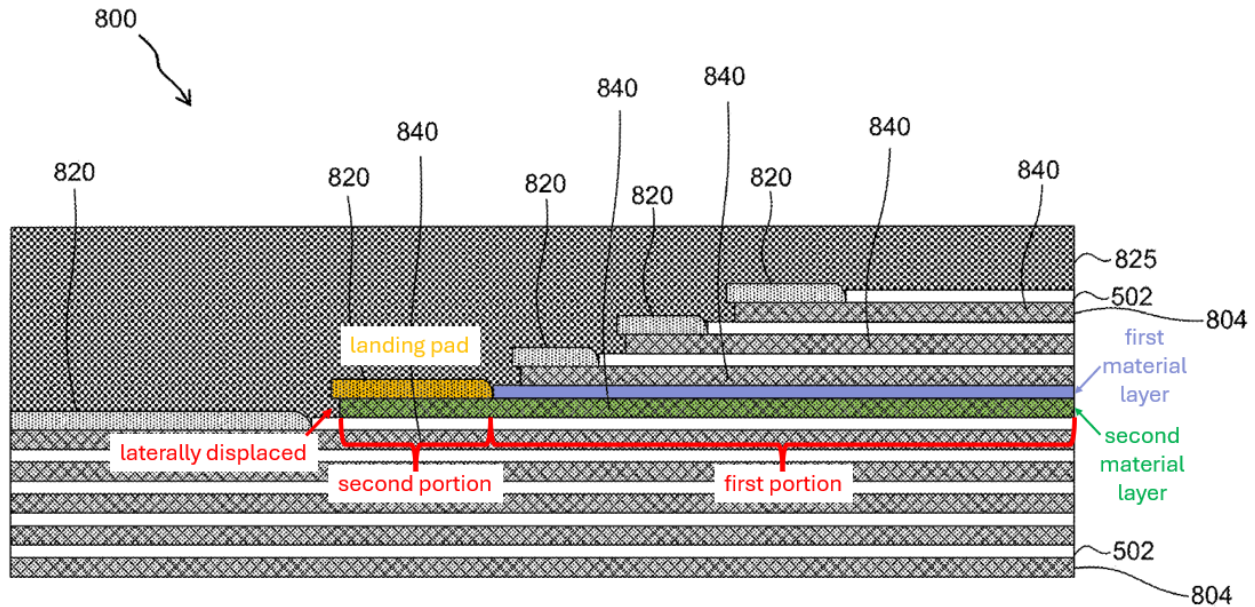
III. The Challenged Claims Recite a Specific Arrangement

Independent claims 1 and 12 are the only independent claims challenged in the Petition. Pet. 9. The claims require a specifically claimed relationship between a “first material layer,” a “second material layer,” and a “landing pad.” The “first material layer” and the “landing pad” are both disposed over distinct, respective first and second portions of the “second material layer.” *See, e.g., Engel Indus., Inc. v. Lockformer Co.*, 96 F.3d 1398, 1404-05 (Fed. Cir. 1996) (concluding that where a claim provides for two separate elements, a “second portion” and a “return portion,” these two elements “logically cannot be one and the same”); Giapis ¶¶39-

¹ YMTC reserves the right to advocate for claim constructions in the event the Board institutes review in this case.

49. Indeed, “the clear implication of the claim language” is that the first portion and the second portion are separate and distinct, as they are listed separately, correspond to the interface between the separate and distinct landing pad and first material layer, and nothing in the claims suggests they should be considered not separate. *Gaus v. Conair Corp.*, 363 F.3d 1284, 1288 (Fed. Cir. 2004) (holding that where “claim lists” elements “separately,” it provides “clear implication” they are “separate” and “distinct” elements); see *Becton, Dickinson & Co. v. Tyco Healthcare Grp. LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010); *Giapis* ¶40.

The claims also define that “the first side surface [of the landing pad] is in contact with the first material layer and the second side surface [of the landing pad] is laterally displaced from a side surface of the second portion of the second material layer.” All together, the claim limitations recite a specific arrangement as shown in, for example, Figure 8 of the '838 patent, annotated below. See *Giapis* ¶39. Tellingly, the Petition avoids mentioning this specifically claimed arrangement altogether in describing the '838 patent. See Pet. 1-2, 14-18.



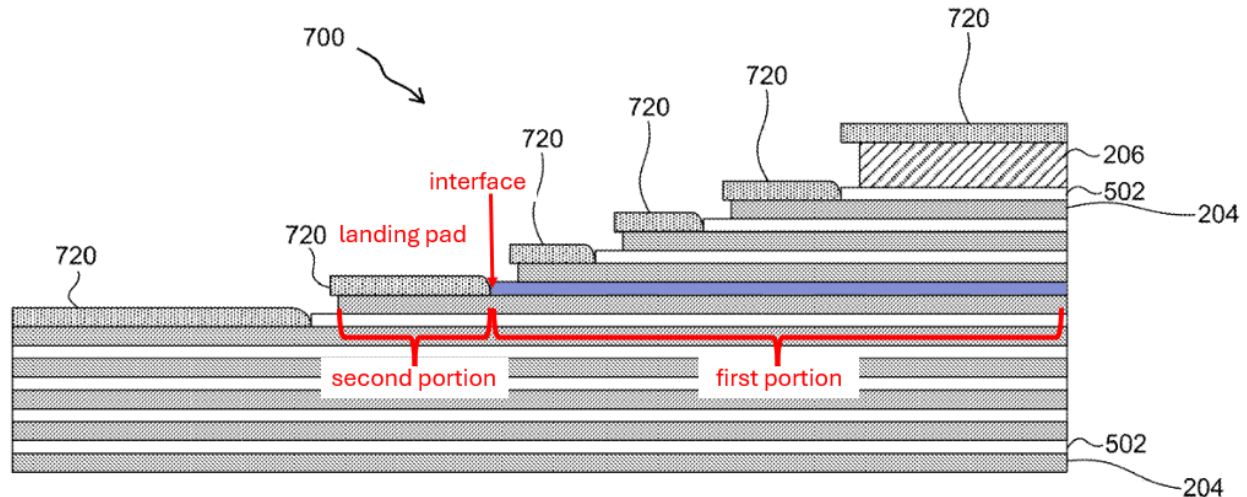
'838 patent at Fig. 8 (annotated). As shown, consistent with the claim language, the first material layer (blue) is over the first portion of the second material layer (green), and the landing pad (orange) is over the second portion of the second material layer. The side surface of the landing pad is laterally displaced from the side surface of the second portion of the second material layer. The first portion and the second portion do not overlap and are distinct for their entirety in the x-direction (left-right in Figure 8 above), and are defined by the interface of the landing pad and the first material layer. See Giapis ¶¶32, 39-42, 49.

This understanding is consistent with the specification. For example, the specification states that there is “a first material layer disposed over a first portion of a second material layer” and that the staircase structure “*further includes*” a “landing pad disposed over a second portion of the second material layer.” '838

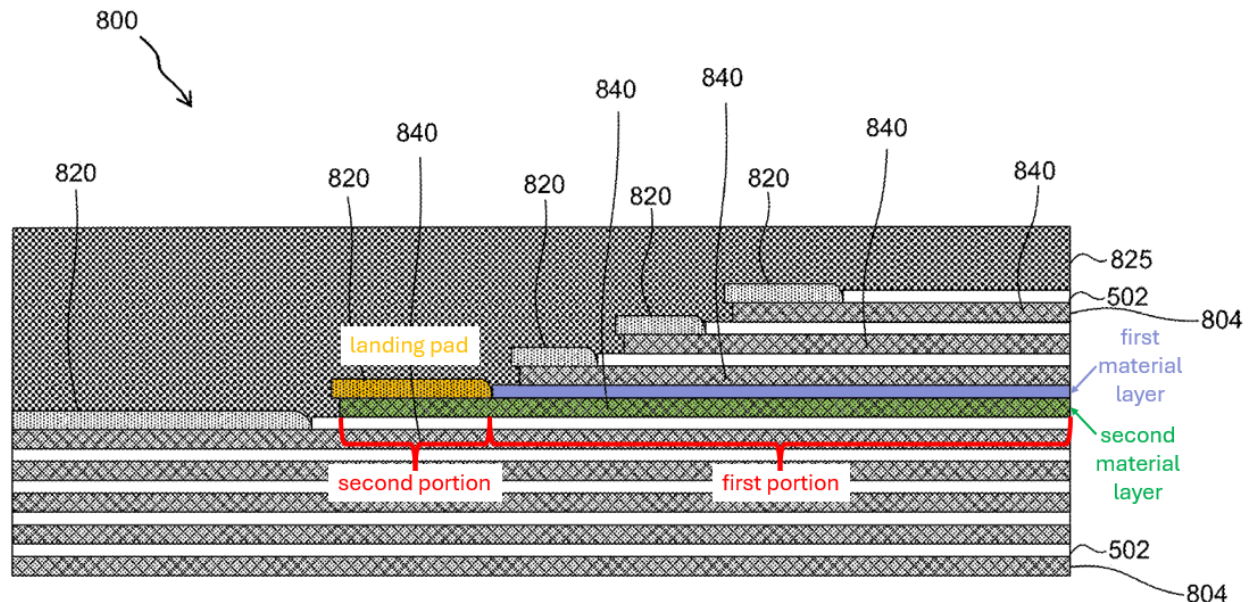
patent at 1:47-54 (emphasis added). That the patent states that the structure has a first portion and “further includes” a second portion confirms that the two portions “logically cannot be one and the same”—instead, they are “separate and distinct.” *Engel*, 96 F.3d at 1404-05 (holding “second portion” and “return portion” “logically cannot be one and the same” where patent stated that the “return portion” is “also provided”); *see also* *Giapis* ¶44.

Furthermore, the formation of the claimed structure described in the specification results in a structure with the specific arrangement described above. As a matter of fact, the specification does not disclose any embodiment in which the resulting structure would have overlapping first and second portions. *See* *Giapis* ¶¶32, 41, 43. During formation, all of the insulating material that had extended in the x-direction on each step to the spacers 410 is removed, leaving insulating material only over a portion of the sacrificial material below it, labeled “covered portion” above (i.e., the “first portion” as claimed), and an “exposed portion” of the sacrificial material of the same step (i.e., the “second portion” as claimed). *See* *Giapis* ¶¶32, 41; ’838 patent Fig. 4, Fig. 5. In subsequent steps, landing pads 720 are formed only over the previously exposed portion of the sacrificial layer, which is the claimed “second portion,” and the interface between the landing pad and first material layer (blue) defines the boundary between the

claimed first portion and second portion of the second material layer. Giapis ¶¶33, 41-42. This is depicted in Figure 7, annotated below. *See* Giapis ¶42.



'838 patent at Fig. 7 (annotated). Then the landing pads 720 and sacrificial layers 204 are replaced with one or more conducting material layers to complete the staircase structure, as depicted in Figure 8. *See* '838 patent at 9:40-53, Fig. 8; *see also* Giapis ¶¶34, 36, 43. This is depicted below in annotated Figure 8. *See* Giapis ¶¶36, 43.



'838 patent at Fig. 8 (annotated). Thus, the process described for forming the staircase structure is consistent with the straightforward reading of the claims as having the specific arrangement described above. *See* Giapis ¶¶39-43. There is no description of a staircase structure where the “first portion” and the “second portion” overlap or are otherwise not distinct from each other, or where the extent of the first material layer overlaps with the extent of the landing pad. *See* Giapis ¶43. Nor could such a structure be formed following the teachings of the '838 patent. *See* Giapis ¶¶29-36, 39-43.

The above understanding of the meaning of “first portion” and “second portion” is also confirmed by similar usage throughout the '838 patent and the understanding of the examiner during prosecution. *See* Giapis ¶¶44-49.

Thus, in light of the consistent usage in the claims, specification, and prosecution history, a POSITA would understand that claims 1 and 12 recite a

specific arrangement of the first material layer and the landing pad over distinct portions of the second material layer that do not overlap. *See Engel*, 96 F.3d at 1404-05 (reviewing intrinsic evidence and concluding “a second portion” “logically cannot be one and the same” with “a return portion” and that they are “separate and distinct”); *Regents of Univ. of Minn. v. AGA Med. Corp.*, 717 F.3d 929, 935-36 (Fed. Cir. 2013) (holding “first and second disks” had to be “physically distinct and separate disks,” which was supported in part by the fact that the “specification never teaches an embodiment” that showed otherwise, and every embodiment taught they were separate); *Rovi Guides, Inc. v. Comcast Cable Commc'ns, LLC*, 796 F. App'x 735, 737 (Fed. Cir. 2020) (agreeing that “first and second interactive electronic program guides” referred to “‘different’ guides”); *see also* Giapis ¶49.

Rather than identifying this claimed arrangement in the prior art, Petitioner and its expert avoid it altogether and, therefore, fail to show the challenged claims are obvious.

IV. Ground 1: The Petition Misrepresents Kim, Ignores the Claimed Specific Arrangement, and Fails to Demonstrate that Kim Renders Claims 1 and 12 Obvious

As explained in Section III, claims 1 and 12 recite a specific arrangement of memory device structures. The claims require that the “first material layer” is over the “first portion of the second material layer,” and the “landing pad” is over the

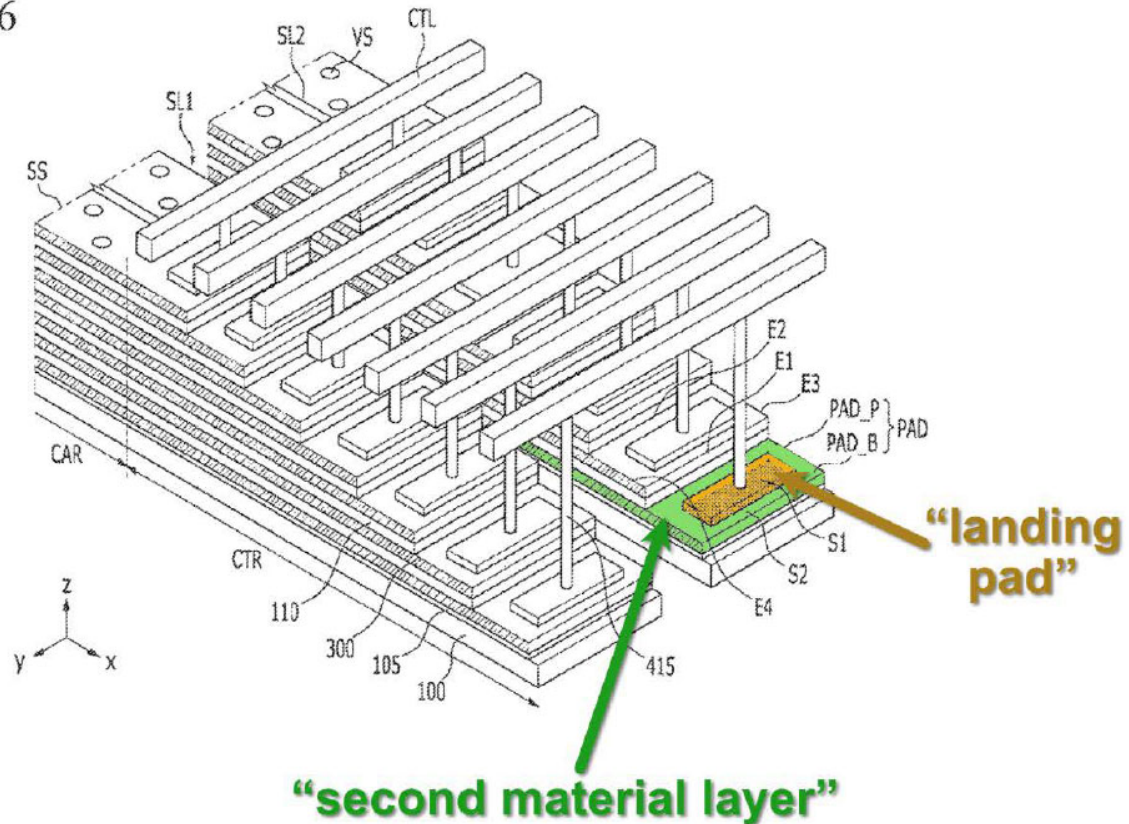
“second portion of the second material layer.” A “second side surface” of the “landing pad” must also be “laterally displaced from a side surface of the second portion of the second material layer.” Furthermore, the “first portion” and the “second portion” do not overlap and are distinct, and the “first material layer” and “landing pad” are over the respective portions of the “second material layer.”

Petitioner and its expert argue that Kim alone purportedly discloses these limitations. Pet. 27-31. In analyzing Kim, Petitioner's expert relies on PAD_P structures with an island shape. But Petitioner's expert ignores Kim's own teachings as to how Kim's stacking structure is formed, and then relies on hindsight-driven and arbitrary labels in an attempt to mimic the specific claimed arrangement discussed in the Section III.

Petitioner's expert misrepresents or misunderstands Kim. In discussing the arrangement of the “first material layer,” “second material layer,” and “landing pad,” Petitioner's expert relies only on Figures 4B and 6 of Kim. *See* Ex.1003 ¶¶144-202 (using annotated versions of only Kim Figures 4B and 6); Giapis ¶55; *see also* Pet. 27-38 (using same annotated versions of only Kim Figures 4B and 6). And Petitioner's expert uses only Kim Figure 4B to show his complete mapping of the '838 claim limitations to Kim's structure. *See* Ex.1003 ¶196. But Kim Figure 4B only shows Kim's stacking structure in the x-z plane. *See* Kim at 2:39-43, 5:22-28, 5:58-67, 6:15-19, Fig. 4A, Fig. 4B; Giapis ¶59. Petitioner's expert relies

on Kim's Figure 6, as annotated below and which shows the structure in three dimensions, as showing Kim's PAD_P as the claimed landing pad.

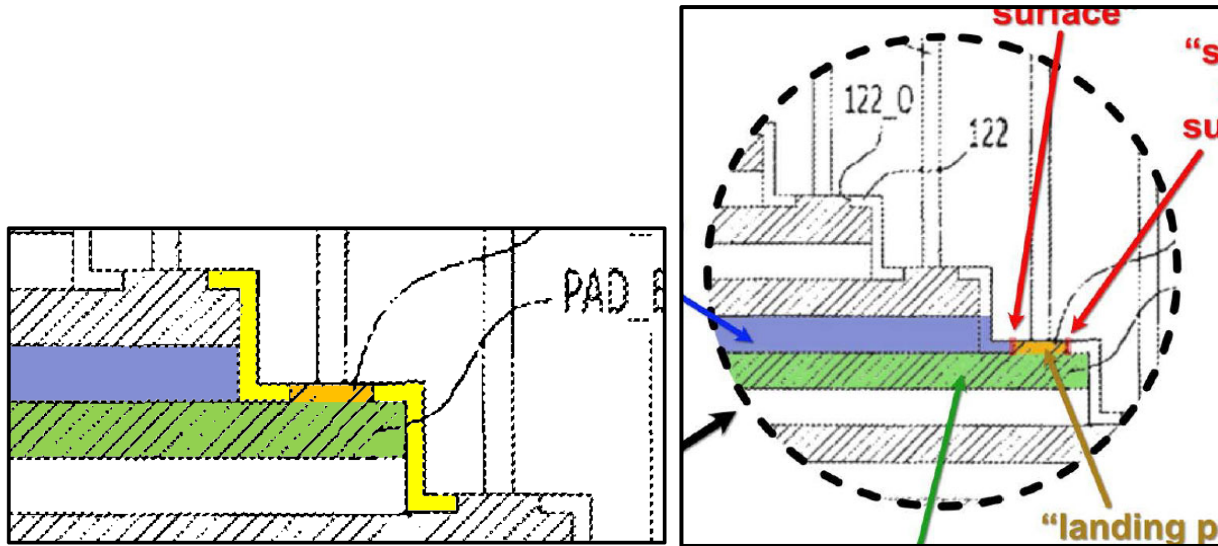
FIG. 6



Ex.1003 ¶194 (annotations in Ex.1003); *see also* Pet. 36 (citing same annotated figure). As can be seen, the PAD_P “landing pad” “has an ‘island shape,’” as Petitioner’s expert puts it—all sides of the PAD_P are set inside the edges of the second material layer below. *Id.* ¶¶180 (citing Kim at 8:23-28), 192; *see also* Giapis ¶59. Petitioner’s expert relies on island shaped PAD_P structures elsewhere in his opinions too. *See* Ex.1003 ¶263; Giapis ¶60. But in relying on the island shaped PAD_P, Petitioner’s expert fails to account for Kim’s auxiliary layer 122, which is not depicted in Figure 6, but understood by a POSITA to be

present. Giapis ¶60; *compare* Kim Fig. 4B (identifying auxiliary layer 122), *with* Kim Fig. 6 (no layer 122 identified).

According to Kim, what Petitioner's expert opines is the "first material layer" surrounds the island PAD_P on all sides. Petitioner's expert opines that "because layers 110 and 122 are formed from the same material such that they 'form one structure' as Kim itself states, in my opinion a POSITA would have understood that they together form a 'first material layer.'" Ex.1003 ¶160 (emphasis removed); *see also id.* ¶154. To explain Petitioner's expert's statements, the figure on the left below annotates Kim's layer 110 in blue, Kim's gate electrode 300 in green, Kim's PAD_P in orange, and Kim's auxiliary layer 122 in yellow. *See* Kim at 5:53-55, 6:15-19, 7:50-8:10, 9:12-20, Fig. 4B; Giapis ¶57. The figure on the right below is a cropped version of the figure from paragraph 182 of Petitioner's expert's declaration. Comparing the two illustrates Petitioner's expert's opinion: the adjacent part of the auxiliary layer 122 on the same step as the insulating layer 110 together make up the claimed "first material layer." *See* Giapis ¶57.

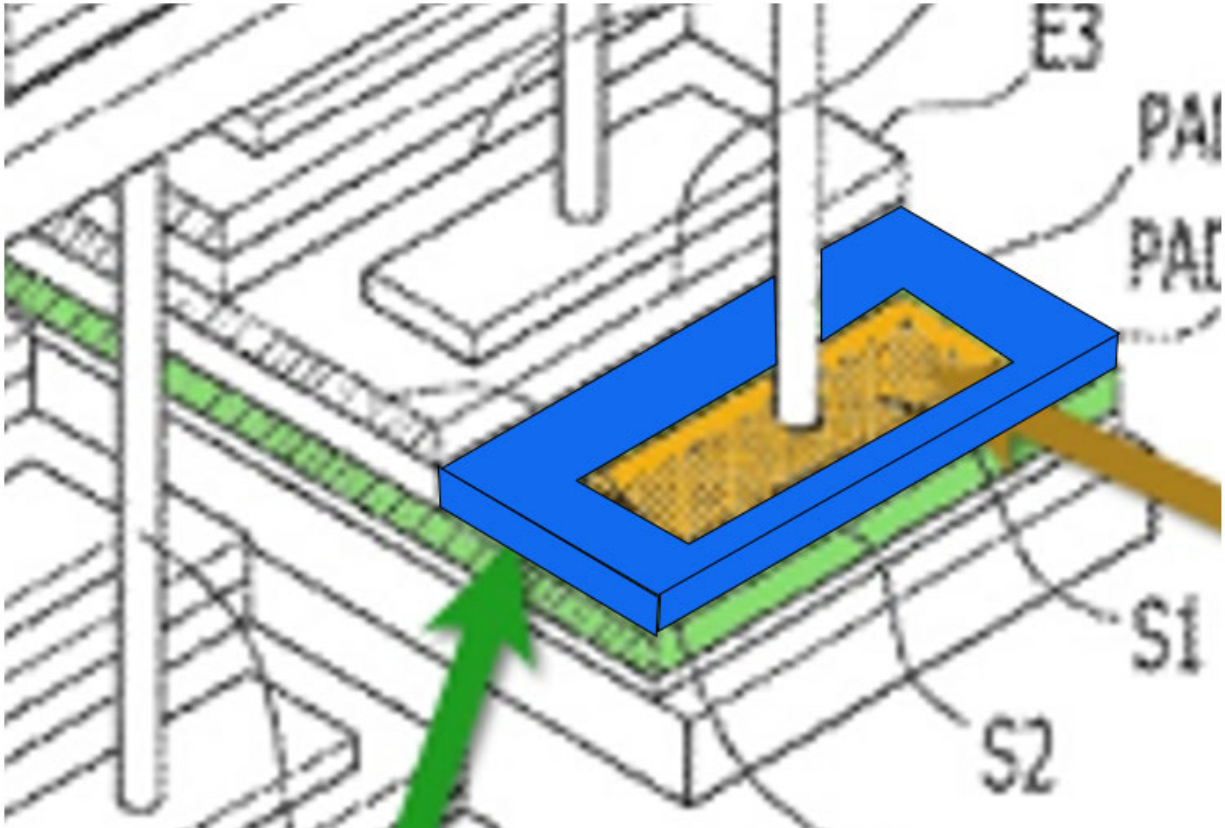


Kim at Fig. 4B (left annotated here; right annotations in Ex.1003).

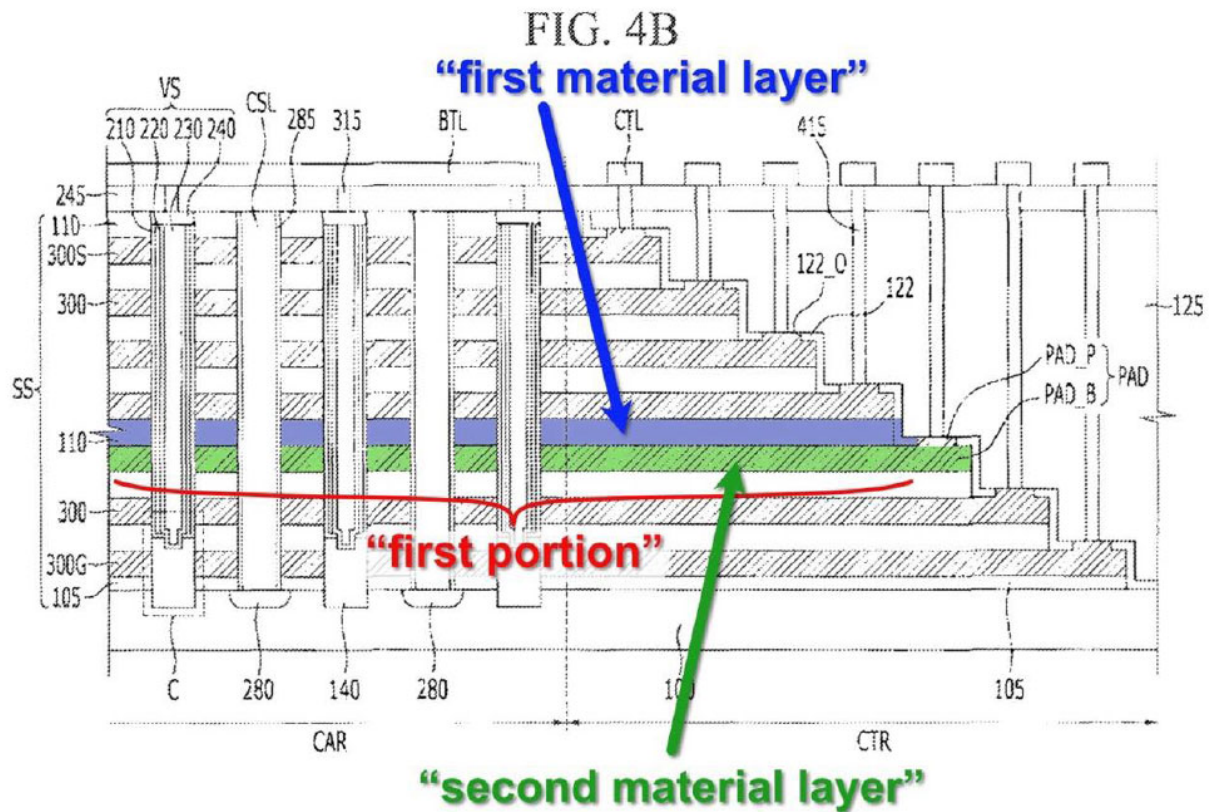
But Petitioner's expert, without explanation, cherry-picks the auxiliary layer only on the left side of the PAD_P while arbitrarily excluding the auxiliary layer on the right side of the same PAD_P. Petitioner's expert essentially misrepresents Kim's teachings based on hindsight, which is contrary to law. *See, e.g., Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1331-32 (Fed. Cir. 2019) (noting "the longstanding principle that the prior art must be considered for all its teachings, not selectively"); *Zoltek Corp. v. U.S.*, 815 F.3d 1302, 1313 (Fed. Cir. 2016) (noting expert's reconstruction of patent figure was arbitrary and stating "[h]indsight reconstruction for litigation ends is not of probative value").

Petitioner's expert acknowledges that "auxiliary layer 122 is applied *before* Kim's contact pads are formed. In particular, after 'the plurality of insulating layers 110' are 'patterned in the stepwise structure in the contact region CTR,' then the

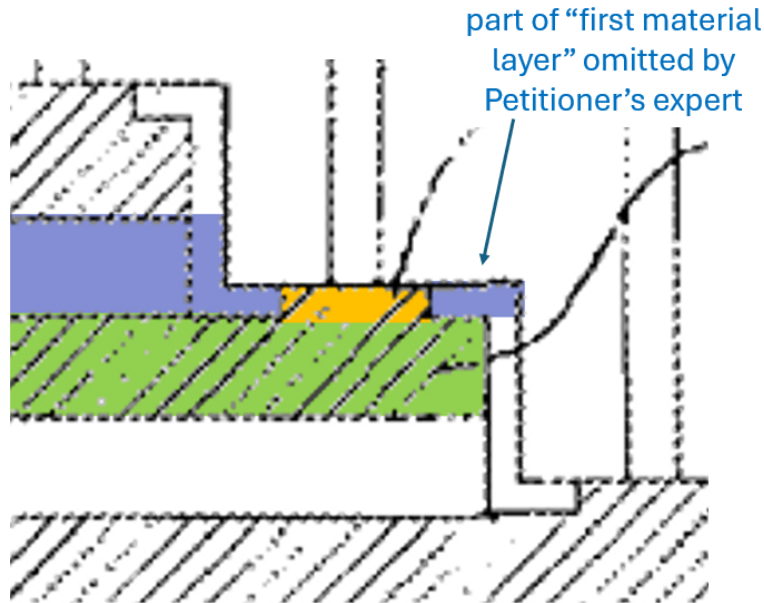
auxiliary insulating layer 122: is ‘formed thereon.’” Ex.1003 ¶157 (citing Kim at 12:34-37, Fig. 11); *see also* Giapis ¶¶60-63. He continues, noting that “the auxiliary insulating layer 122 is used to form the contact pads” by creating “‘opening 122_O’ that will correspond to the pads.” Ex.1003 ¶158 (citing Kim at 12:61-13:11, 13:51-14:17); *see also* Giapis ¶¶52-54, 60. The result of forming an island shaped PAD_P in auxiliary layer 122 is shown below, which zooms in on the annotated figure from paragraph 194 of Petitioner’s expert’s declaration. This shows that the formed auxiliary layer 122 (blue) surrounds the island shaped PAD_P. A POSITA following Kim’s teachings would understand the below to be the resulting structure. *See* Kim at 10:49-51; Giapis ¶¶60-61. While Petitioner’s expert acknowledges Kim’s process of forming PAD_P from auxiliary layer 122, *see* Ex.1003 ¶¶157-162, 251-255, he fails to account for the fact that the auxiliary layer 122 surrounds the PAD_P in his obviousness analysis, *see* Giapis ¶¶60-66.



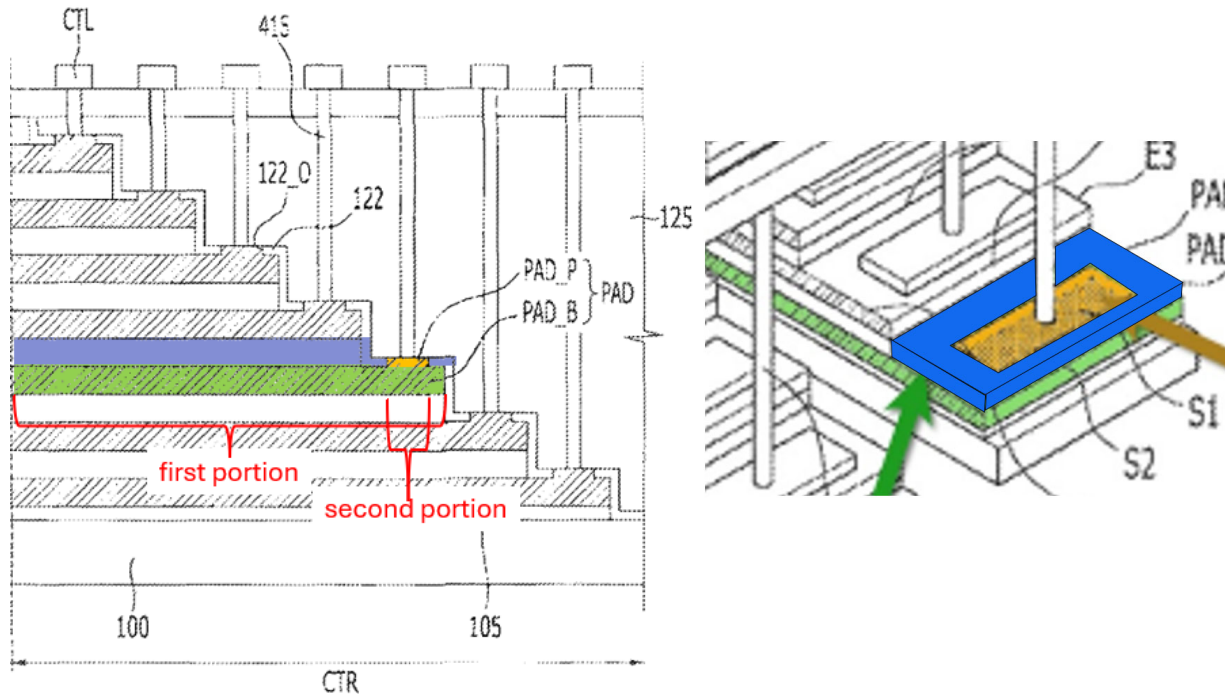
If auxiliary layer 122 forms one structure with insulating layer 110, as Petitioner's expert opines, then it forms one structure all the way around the PAD_P. *See* Giapis ¶¶61. As shown below from Petitioner's expert's declaration, he arbitrarily defines the "first portion" to terminate where the annotated blue color stops at the PAD_P, perhaps where he mistakenly places the interface between the first material layer and the landing pad. *See* Giapis ¶¶57, 63.



Ex.1003 ¶167 (annotations in Ex.1003). But accounting for Kim’s actual teachings, Petitioner’s expert should have annotated Figure 4B of Kim as shown below. The first material layer 110 extends all the way past the end of the second material layer below it, understanding that it also surrounds the PAD_P as shown above. Giapis ¶63.



Kim at Fig. 4B (annotated); *see* Giapis ¶¶63. As explained in Section III, the first material layer defines the "first portion" of the second material layer. Likewise, the landing pad defines the "second portion" of the second material layer, and the interface between the first material layer and the landing pad defines the boundary between the "first portion" and the "second portion." Accordingly, the below figures show this relationship in Kim. *See* Giapis ¶¶61-64.



Kim at Fig. 4B (cropped and annotated). Because the first material layer completely surrounds the island shaped landing pad, the “second portion of the second material layer” is an island shaped portion underneath the landing pad, with the boundary between the “first portion” and “second portion” at the interface between the first material layer and the landing pad. *See* Giapis ¶64.

Consequently, Kim fails to show the structures of claims 1 and 12 of the '838 patent. Rather than one side surface of the landing pad being in contact the first material layer and the other side surface being laterally displaced from the second portion of the second material layer as claimed, *all* sides of the landing pad contact the first material layer and there is no lateral displacement. Because the second portion is an island shaped portion only under Kim's PAD_P, the PAD_P

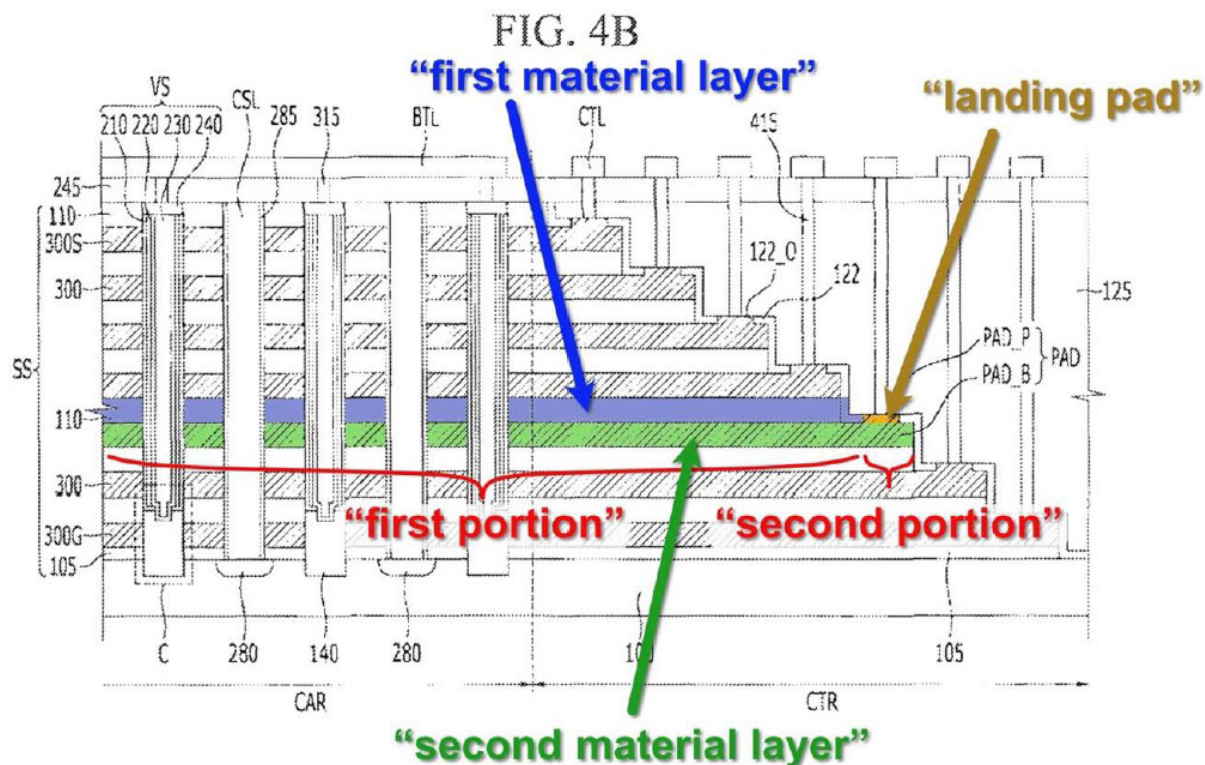
and the second portion are coterminous when viewed from above. *See* Giapis

¶¶64-65. This fails to satisfy the claims' requirement that the landing pad's

"second side surface is laterally displaced from a side surface of the second portion of the second material layer." There is no lateral displacement at all. *See* Giapis

¶65.

Petitioner's expert's arbitrary labeling—shown below, extending the second portion all the way to the edge of the second material layer—is an impermissible hindsight reconstruction that is unsupported by Kim.



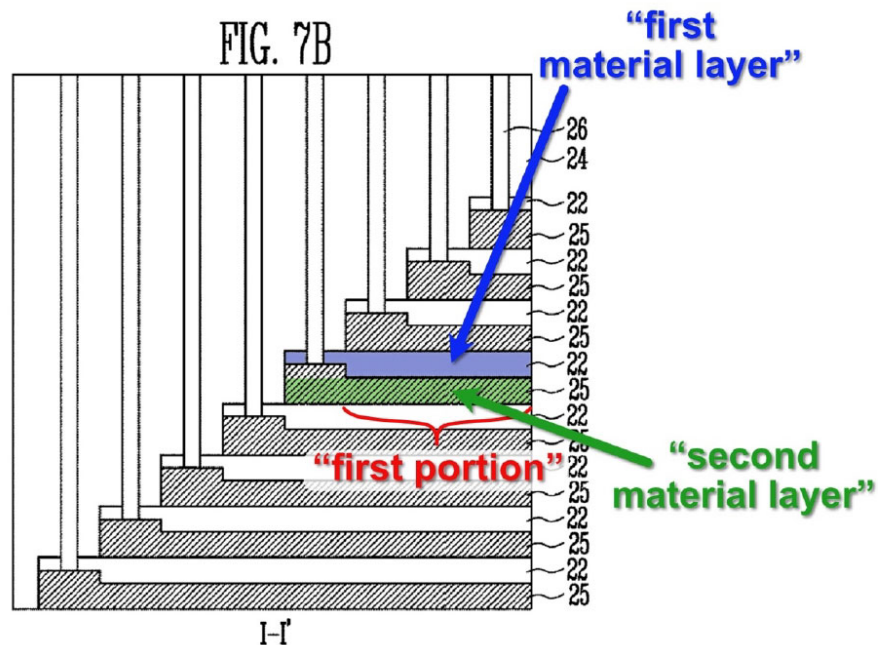
Ex.1003 ¶175 (annotations in Ex.1003).

Thus, accounting for Kim's teachings, rather than ignoring them as Petitioner's expert does, Kim fails to show that "the second side surface [of the landing pad] is laterally displaced from a side surface of the second portion of the second material layer" as required by claims 1 and 12. *Giapis* ¶¶65-66. Ground 1 fails.

V. Ground 3: The Petition Ignores the Claimed Specific Arrangement, Improperly Reads "First Portion" and "Second Portion" Out of the Claims, and Fails to Demonstrate that Lee Renders Claims 1 and 12 Obvious

As explained in Section III, claims 1 and 12 require that the "first material layer" is over the "first portion of the second material layer," and the "landing pad" is over the "second portion of the second material layer." The "first portion" and the "second portion" do not overlap and are distinct, and the "first material layer" and "landing pad" are over the respective portions of the "second material layer." Ground 3 relies on Lee alone as purportedly disclosing these limitations. *Pet.* 61-63. But Petitioner and its expert again resort to hindsight-driven labels, and to reading the "first portion" and "second portion" limitations out of the claims.

According to Petitioner's expert, Lee's "insulating layer 22, annotated blue" is the "first material layer," as shown below. *Ex.1003* ¶354.



Ex.1003 ¶354 (annotations in Ex.1003). As can be seen, the first material layer extends over *the entirety* of the second material layer, which Petitioner's expert maps to Lee's "conductive layer 25, annotated green," yet he arbitrarily identifies a "first portion" under only part of the first material layer. *Id.*; *see also* Giapis ¶73. Without explaining this arbitrary selection, Petitioner's expert then maps "the pad portion PAD on the end of each of Lee's conductive layer (annotated orange / brown)" as the "landing pad," as shown below. Ex.1003 ¶360; *see also* Giapis ¶¶74-75. Finally, Petitioner's expert also arbitrarily designates a "second portion" without addressing that the identified first material layer is over the identified landing pad and the identified "second portion." *See* Giapis ¶¶73-76. These arbitrary and unexplained labels "use the challenged patent as a roadmap to reconstruct the claimed invention using disparate elements from the prior art—i.e.,

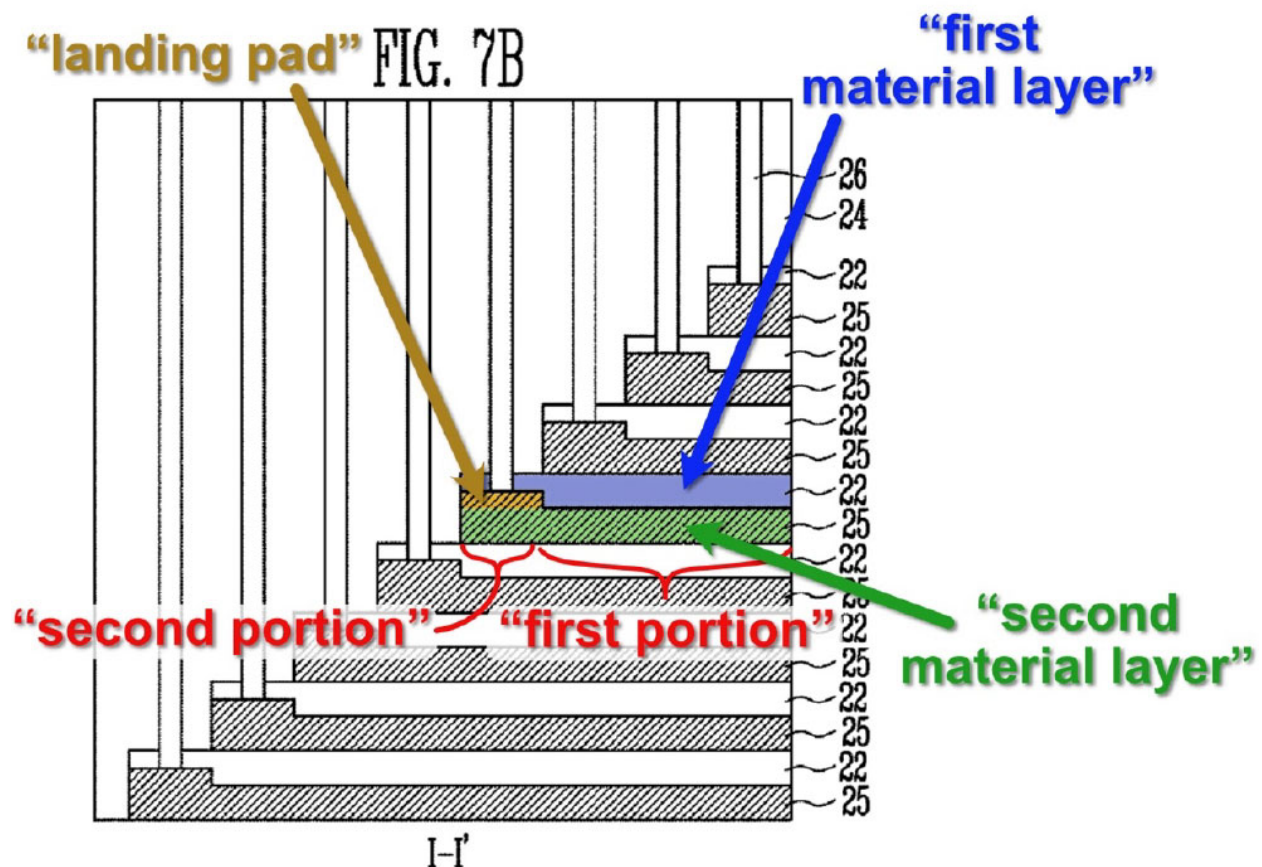
the impermissible *ex post* reasoning and hindsight bias that *KSR* warned against.”

TQ Delta, LLC v. Cisco Sys., Inc., 942 F.3d 1352, 1361 (Fed. Cir. 2019); *see also*

Zoltek, 815 F.3d at 1313 (noting expert's reconstruction of patent figure was

arbitrary and stating “[h]indsight reconstruction for litigation ends is not of

probative value”); *Giapis* ¶¶73-76.



Ex.1003 ¶360 (annotations in Ex.1003).

While Petitioner's expert does not at all address that his identified first material layer is over the identified landing pad and the identified “second portion,” the Petition argues that “[t]he claims require only that an insulating layer

be ‘disposed over a first portion’ of an underlying conductive layer. They do not prohibit the insulating layer from also covering other portions of the same conductive layer.” Pet. 62. In other words, Petitioner argues that it does not matter that the first material layer is positioned outside the area prescribed by the claims, or that there is no distinct first and second portions in Lee because of this.

Petitioner is wrong.

As the Federal Circuit has stated, “an important principle of interpretation” is that “[i]t is highly disfavored to construe terms in a way that renders them void, meaningless, or superfluous.” *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 809-10 (Fed. Cir. 2021) (quoting *Wasica Fin. GmbH v. Cont’l Auto. Sys., Inc.*, 853 F.3d 1272, 1288 n.10 (Fed. Cir. 2017)). *Liberty Ammunition, Inc. v. United States*, 835 F.3d 1388 (Fed. Cir. 2016) is instructive. In *Liberty*, the claim recited “a body including a nose portion and tail portion, said body further including an interface portion disposed intermediate opposite ends of said body.” *Id.* at 1399. The trial court construed the positional term “intermediate opposite ends” to mean “that the interface is positioned between or in the middle of the opposite ends of the forward end of the nose portion and the trailing end of the tail portion.” *Id.* The trial court refused to include in its construction, “such that the interface does not extend all of the way to the front or to the end of the projectile.” *Id.* “[T]he trial court concluded that so long as the interface was positioned, in part, between the forward

end and the trailing end of the projectile, *it did not matter if the interface was also positioned outside of that prescribed area.*” *Id.* (emphasis added). That is the same argument Petitioner makes here. The Federal Circuit rejected it in *Liberty*, noting that the additional language not adopted by the trial court was “fully supported by the plain claim language and specification.” *Id.* The Federal Circuit also noted that by not adhering to the plain claim language, the trial court’s construction “significantly diminishes the ‘intermediate opposite ends’ limitation, almost to the point of rendering it a nullity.” *Id.*

The *Liberty* reasoning is equally applicable here. Just as in *Liberty*, the “very essence” of the “first portion” and “second portion” limitations “is to define a precise position for the” “first material layer” and the “landing pad” over the “second material layer.” *Id.*; *Giapis* ¶¶39-40, 49, 76-78; *see also* Section III. Ignoring that specific arrangement, like Petitioner and its expert do, improperly treats the claims the same as if the “first portion” and “second portion” language were omitted from the claims entirely, rather than the separate and distinct portions that they are. *See Giapis* ¶¶76-77. Further, there is no “first portion” in *Lee* because the identified “first material layer” is disposed over *the entirety* of the identified “second material layer”—not a specific portion. *See Giapis* ¶73. At best, *Lee* discloses “the first material layer is disposed over” “the second material layer,” and that the “landing pad [is] disposed over” “the second material layer.”

See Giapis ¶76. In other words, Lee only shows a memory structure with “first portion” and “second portion” omitted from the claim language—Lee does not show the claimed arrangement. Giapis ¶¶76-77. To render those limitations “optional or potentially nonexistent,” as the Petition does, is incorrect. *Wasica*, 853 F.3d at 1288 n.10. Thus, the Petition has failed to show claims 1 and 12 are obvious in view of Lee. Consequently, the Petition also has failed to show that any challenged claims that depend from claims 1 and 12 are obvious in view of Lee.²

² The Petition points to passages from column 4 of the '838 patent, and suggests that they “simply serve[] to confirm that the patent intends the claims to be interpreted broadly.” Pet. 20-21. Even if Petitioner's statement is accepted as correct, that does not mean that the claims are to be interpreted so broadly as to render claim language superfluous like Petitioner does. *See Intel*, 21 F.4th at 809-10 (noting that “an important principle of interpretation” is that “[i]t is highly disfavored to construe terms in a way that renders them void, meaningless, or superfluous.” (citation omitted)). In particular, the discussion of “over” in the specification merely notes that “over” encompasses a feature being on another directly or with an intermediary between the two features. *See* '838 patent at 4:4-12; Giapis ¶38.

VI. Grounds 2, 4, and 5 Fail

For the reasons explained in Sections III, IV, and V, Petitioner has failed to demonstrate that independent claims 1 and 12 are obvious. Grounds 2, 4, and 5 do not separately address the limitations of claims 1 and 12, *see* Pet. 54, 77, 80, and therefore also fail to demonstrate that claims 1 and 12, or any of the other challenged claims are obvious. *See* Giapis ¶¶79-81.

VII. Conclusion

For the reasons set forth above, the Board should deny the Petition for Post Grant Review.

Respectfully submitted,

Dated: June 6, 2025

By: / Inge A. Osman /

Inge A. Osman (Reg. No. 74,480)
inge.osman@lw.com
Latham & Watkins LLP
555 Eleventh Street, NW, Ste. 1000
Washington, DC 20004-1304
Tel.: 202.637.2200
Fax: 202.637.2201

*Counsel for Patent Owner
Yangtze Memory Technologies
Company, Ltd.*

CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. § 42.24

I hereby certify that this Patent Owner's Preliminary Response complies with the word count limitation of 37 C.F.R. § 42.24(b)(1) because the Patent Owner's Preliminary Response contains 4,981 words using Microsoft Word's counting feature, excluding the cover page, signature block, and the parts of the Patent Owner's Preliminary Response exempted by 37 C.F.R. § 42.24(b)(1).

By: / Inge A. Osman /

Inge A. Osman (Reg. No. 74,480)
inge.osman@lw.com
Latham & Watkins LLP
555 Eleventh Street, NW, Ste. 1000
Washington, DC 20004-1304
Tel.: 202.637.2200
Fax: 202.637.2201

*Counsel for Patent Owner
Yangtze Memory Technologies
Company, Ltd.*

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), I certify that on this 6th day of June, 2025, a true and correct copy of the foregoing **Patent Owner's Preliminary Response and all Exhibits** were served by electronic mail on Petitioner's lead and backup counsel at the following email addresses:

K. Patrick Herman
Orrick, Herrington & Sutcliffe LLP
51 West 52nd Street
New York, NY 10019
T: 212-506-5000
F: 212-506-5151
pherman@orrick.com

Jeremy Jason Lang
Jared Bobrow
Orrick, Herrington & Sutcliffe LLP
1000 Marsh Road
Menlo Park, CA 94025-1015
T: 650-614-7400
F: 650-614-7401
jlang@orrick.com
jbobrow@orrick.com
P52PTABDocket@orrick.com
PTABDocketJL2@orrick.com
PTABDocketJ3B3@orrick.com
MICRON-YMTC_OHS@orrick.com

By: / Inge A. Osman /

Inge A. Osman (Reg. No. 74,480)
inge.osman@lw.com
Latham & Watkins LLP
555 Eleventh Street, NW, Ste. 1000
Washington, DC 20004-1304
Tel.: 202.637.2200

Fax: 202.637.2201

*Counsel for Patent Owner
Yangtze Memory Technologies
Company, Ltd.*