IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

TOPWIRE LLC, *Plaintiff*, v. SAMSUNG ELECTRONICS CO., LTD.; SAMSUNG ELECTRONICS AMERICA, INC., *Defendants*.	§ § § § § § § § § § § § § §	Civil Action No.: 2:25-cv-01183-JRG-RSP JURY TRIAL DEMANDED

PLAINTIFF'S DISCLOSURE OF ASSERTED CLAIMS AND INFRINGEMENT CONTENTIONS

Plaintiff TopWire LLC ("TopWire" or "Plaintiff") hereby makes the following disclosure of asserted claims and infringement contentions with respect to U.S. Patent No. 9,859,202 (the "Asserted Patent") to Defendants Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc. (collectively, "Samsung" or "Defendants").

TopWire's investigation is ongoing, and discovery is in its early stages. Accordingly, these disclosures are based on information available to TopWire at this time. TopWire reserves the right to supplement this disclosure after further discovery from Defendants and others, particularly documents and other discovery regarding Defendants' Accused Instrumentalities as disclosed below. TopWire also reserves the right to accuse different instrumentalities or alternative literal and/or equivalent infringing elements in Defendants' Accused Instrumentalities as disclosed below.

Pursuant to P.R. 2-2, all document production accompanying Plaintiff's Disclosure of

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Asserted Claims and Infringement Contentions, other than publicly available exhibits referenced in Plaintiff's P.R. 3-1(c) charts, shall be deemed "Confidential." Accordingly, the disclosure of all such document production accompanying Plaintiff's Disclosure of Asserted Claims and Infringement Contentions shall be limited to Defendants' outside attorneys of record and the employees of said outside attorneys.[1]

I. PLAINTIFF'S RULE 3-1 DISCLOSURE OF ASSERTED CLAIMS AND INFRINGEMENT CONTENTIONS

A. Each claim of each patent in suit that is allegedly infringed by each opposing party.

Pursuant to P.R. 3-1(a), TopWire asserts that Samsung has infringed and continues to infringe at the least the following claims of the Asserted Patent:

- Claim 1
- Claims 2–4
- Claim 6
- Claim 9

As explained above, TopWire believes that discovery from Samsung and others will provide additional evidence of the nature and/or scope of Samsung's infringement. Accordingly, TopWire reserves the right to amend, supplement, or otherwise revise the Asserted Claims.

[1] In many portions of TopWire's 3-1 and 3-2 disclosures, TopWire has gone beyond the disclosure requirements required by P.R. 3-1 and 3-2. These additional disclosures and citations are made for the benefit of Defendants. TopWire in no way confines its contentions to the specific citations of evidence and explicitly reserves the right to rely on additional or different evidence as the case moves forward through fact discovery, expert discovery, and trial. Furthermore, any omission of any other specific citation to the Accused Instrumentalities or documents related thereto does not constitute a waiver of TopWire's right to raise any issues related to the Accused Instrumentalities or other documents related thereto at a later date.

B. Separately for each asserted claim, each accused apparatus, product, device, process, method, act, or other instrumentality ("Accused Instrumentality")[2] of each opposing party of which the party is aware. This identification shall be as specific as possible. Each product, device, and apparatus must be identified by name or model number, if known. Each method or process must be identified by name, if known, or by any product, device, or apparatus which, when used, allegedly results in the practice of the claimed method or process.

Pursuant to P.R. 3-1(b), TopWire asserts that the Asserted Claims of the Asserted Patent are infringed by Samsung by at least all Samsung systems and/or devices that are or incorporate stacked motherboards (sometimes also referred to as "logic boards"), such as multi-layer motherboards with substrate-like printed circuit boards, including but not limited to Samsung's smartphones.

Based on information currently available to TopWire, Samsung makes, uses, offers for sale, imports, and sells products that incorporate these stacked motherboards, including but not limited the smartphones identified in Plaintiff's original complaint (*see* Dkt. at ¶25) and the following series[3] of Samsung smartphones:

- Samsung Galaxy Note10 series
- Samsung Galaxy S10 series
- Samsung Galaxy Note20 series
- Samsung Galaxy S20 series
- Samsung Galaxy S21 series
- Samsung Galaxy S22 series
- Samsung Galaxy S23 series

[2] The term "Accused Instrumentality" and its plural form are used interchangeably with "Accused Product" and its plural form.
[3] The term "series" means each version of the Samsung smartphone included in a Samsung smartphone lineup, including but not limited to "5G" versions, "+" versions, "ultra" versions, and "fan edition" versions.

- Samsung Galaxy S24 series
- Samsung Galaxy S25 series
- Samsung Galaxy Fold
- Samsung Galaxy Z Flip
- Samsung Galaxy Z Fold2
- Samsung Galaxy Z Flip 5G
- Samsung Galaxy Z Fold3
- Samsung Galaxy Z Flip3
- Samsung Galaxy Z Fold4
- Samsung Galaxy Z Flip4
- Samsung Galaxy Z Fold5
- Samsung Galaxy Z Flip5
- Samsung Galaxy Z Fold6
- Samsung Galaxy Z Flip6
- Samsung Galaxy Z Fold7
- Samsung Galaxy Z Flip7

(collectively "Accused Instrumentalities"). TopWire contends that at least these infringing products infringe the Asserted Claims.

Neither the Accused Instrumentalities nor TopWire's infringement contentions are limited to the specifically listed models above but also include all devices or iterations of the above devices that contain stacked motherboards, whether currently available or later designed, developed, released or produced, or which TopWire may become aware of through the course of discovery. TopWire believes that the manufacture, use, importation, and sales of devices with stacked

motherboards will increase over time and that discovery from Samsung and others will provide additional evidence of the nature and/or scope of Samsung's infringement. Accordingly, TopWire reserves the right to amend, supplement, or otherwise revise the Accused Instrumentalities.

C. A chart identifying specifically where each element of each asserted claim is found within each Accused Instrumentality, including for each element that such party contends is governed by 35 U.S.C. § 112(¶ 6), the identity of the structure(s), act(s), or material(s) in the Accused Instrumentality that performs the claimed function.

Pursuant to P.R. 3-1(c), claim charts for Samsung's infringement of the Asserted Claims of the Asserted Patents is set forth in Exhibits A–I. TopWire has charted the Asserted Patent against the following example Samsung products:

- Exhibit A (Samsung Galaxy Note10)
- Exhibit B (Samsung Galaxy S20)
- Exhibit C (Samsung Galaxy S22)
- Exhibit D (Samsung Galaxy S23)
- Exhibit E (Samsung Galaxy S23 Ultra)
- Exhibit F (Samsung Galaxy S24)
- Exhibit G (Samsung Galaxy S25)
- Exhibit H (Samsung Galaxy Z Flip5)
- Exhibit I (Samsung Galaxy Z Flip6)

These products are representative of all the Accused Instrumentalities, including because they cover generations of motherboard technology created by Samsung. For example, all Accused Instrumentalities include multiple layers of substrate-like printed circuit boards. All Accused Instrumentalities include combinations of metal pillars and pads that separate the substrate-like printed circuit boards. The substrate-like printed circuit boards electrically couple together through

the metal pillars and pads separating them. Furthermore, All Accused Instrumentalities include integrated circuits that are disposed on top of the substrate-like printed circuit boards.

Exhibits A–I cover the architectures of exemplary Samsung's Accused Instrumentalities. All Accused Instrumentalities infringe in substantially similar ways to the contentions set forth in Exhibits A–I. The Accused Instrumentalities were released on or around the same year as many of products charted in Exhibits A–I, which covers Samsung smartphones released between 2019 and 2025. The Accused Instrumentalities also contain many of the same or similar integrated circuits and chipsets as the products charted in Exhibits A–I. To fit and support these integrated circuits and chip sets, along with various other technologies included in the Accused Instrumentalities, these smartphones include motherboards with a smaller form factor, such as a smaller surface area. The smaller form factor in the motherboards of the Accused Instrumentalities is realized through motherboard designs that infringe the Asserted Patent. Because each successive generation of Samsung smartphones released since 2019 includes more features than the previous one, Samsung has designed motherboards for its smartphones that infringe the Asserted Patent since at least 2019.

As shown in Exhibits A–I, each accused Samsung smartphone model analyzed to date practices the Asserted Claims in the same manner and employs substantially similar structures and functionality relevant to the patent. The uniformity in how these nine representative models infringe demonstrates that Samsung's implementation of the Asserted Claims is consistent across their product line. Accordingly, the infringement identified in the charted devices is indicative of, and applies equally to, Samsung's other iPhone models not individually charted.

As explained above, TopWire believes that discovery from Samsung and others will provide additional evidence of the nature and/or scope of Samsung's infringement. Accordingly, TopWire reserves the right to amend, supplement, or otherwise revise the claim charts.

D. Whether each element of each asserted claim is claimed to be literally present or present under the doctrine of equivalents in the Accused Instrumentality.

Pursuant to P.R. 3-1(d), TopWire asserts that, under the proper construction of the Asserted Claims and their claim terms, every limitation of the Asserted Claims of the Accused Patent is literally present in Samsung's Accused Instrumentalities. To the extent that any limitation is found to be not literally present, to the extent that Samsung argues that any limitation is not present in the Accused Instrumentalities, or to the extent discovery reveals attempts to design around any limitation, TopWire asserts that such limitation is present under the doctrine of equivalents.

E. For any patent that claims priority to an earlier application, the priority date to which each asserted claim allegedly is entitled.

Pursuant to P.R. 3-1(e), TopWire asserts that the Asserted Claims of the Asserted Patent are entitled to a priority date of June 24, 2015.

F. If a party claiming patent infringement wishes to preserve the right to rely, for any purpose, on the assertion that its own apparatus, product, device, process, method, act, or other instrumentality practices the claimed invention, the party must identify, separately for each asserted claim, each such apparatus, product, device, process, method, act, or other instrumentality that incorporates or reflects that particular claim.

Pursuant to P.R. 3-1(f), TopWire does not currently wish to preserve the right to rely on the assertion that its own apparatus, product, device, process, method, act, or other instrumentality practices every element of any Asserted Claim.

II. PLAINTIFF'S RULE 3-2 PRODUCTION OF DOCUMENTS

Concurrently with the above Disclosure of Asserted Claims and Infringement Contentions, TopWire is producing documents responsive to P.R. 3-2(c) ("A copy of the file history for [the] patent in suit.").

Documents responsive to P.R. 3-2(c) may be found at production number TOPWIRE-SAMSUNG_000001 - TOPWIRE-SAMSUNG_000215.

Dated: March 12, 2026

Respectfully submitted,

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COUNSEL FOR PLAINTIFF

CERTIFICATE OF SERVICE

I hereby certify that on the March 12, 2026, a copy of the foregoing was served upon all counsel of record via email.

/s/ Warren J. McCarty, III
Warren J. McCarty III

By E-mail

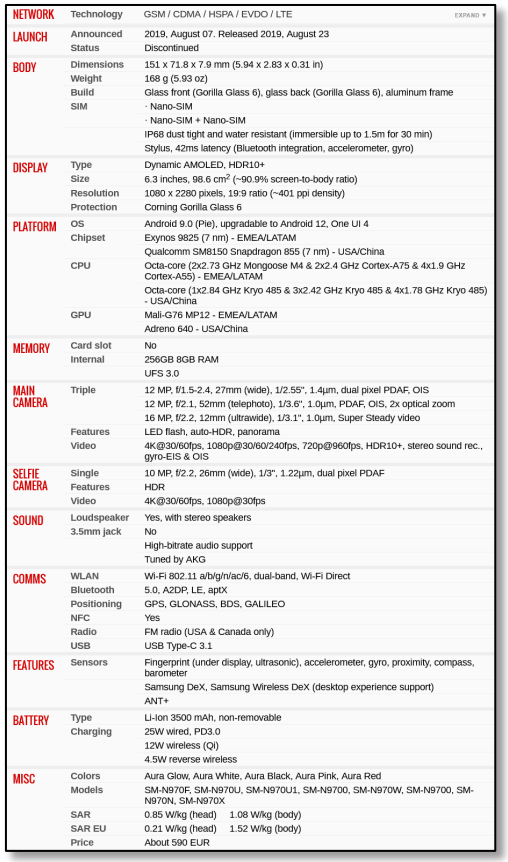
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EXHIBIT A

Exhibit A – U.S. Patent No. 9,859,202 (Accused Smartphones)
"1. A structure, comprising:"

'202 Claim 1	Elements in Accused Smartphones
[1-pre] A structure, comprising:	To the extent the preamble is limiting, Samsung's Accused Smartphones[1] comprise a structure. *E.g.*, Samsung's Accused Smartphones incorporate structures, such as motherboards (sometimes also referred to as "logic boards"). The motherboards in Samsung's Accused Smartphones contain integrated circuits (sometimes also referred to as "chips"). The motherboard performs many core functions of Samsung's Accused Smartphones.  NETWORK — Technology: GSM / CDMA / HSPA / EVDO / LTE (EXPAND) LAUNCH — Announced: 2019, August 07. Released 2019, August 23; Status: Discontinued BODY — Dimensions: 151 x 71.8 x 7.9 mm (5.94 x 2.83 x 0.31 in); Weight: 168 g (5.93 oz); Build: Glass front (Gorilla Glass 6), glass back (Gorilla Glass 6), aluminum frame; SIM: · Nano-SIM · Nano-SIM + Nano-SIM; IP68 dust tight and water resistant (immersible up to 1.5m for 30 min); Stylus, 42ms latency (Bluetooth integration, accelerometer, gyro) DISPLAY — Type: Dynamic AMOLED, HDR10+; Size: 6.3 inches, 98.6 cm² (~90.9% screen-to-body ratio); Resolution: 1080 x 2280 pixels, 19:9 ratio (~401 ppi density); Protection: Corning Gorilla Glass 6 PLATFORM — OS: Android 9.0 (Pie), upgradable to Android 12, One UI 4; Chipset: Exynos 9825 (7 nm) - EMEA/LATAM; Qualcomm SM8150 Snapdragon 855 (7 nm) - USA/China; CPU: Octa-core (2x2.73 GHz Mongoose M4 & 2x2.4 GHz Cortex-A75 & 4x1.9 GHz Cortex-A55) - EMEA/LATAM; Octa-core (1x2.84 GHz Kryo 485 & 3x2.42 GHz Kryo 485 & 4x1.78 GHz Kryo 485) - USA/China; GPU: Mali-G76 MP12 - EMEA/LATAM; Adreno 640 - USA/China MEMORY — Card slot: No; Internal: 256GB 8GB RAM; UFS 3.0 MAIN CAMERA — Triple: 12 MP, f/1.5-2.4, 27mm (wide), 1/2.55", 1.4µm, dual pixel PDAF, OIS; 12 MP, f/2.1, 52mm (telephoto), 1/3.6", 1.0µm, PDAF, OIS, 2x optical zoom; 16 MP, f/2.2, 12mm (ultrawide), 1/3.1", 1.0µm, Super Steady video; Features: LED flash, auto-HDR, panorama; Video: 4K@30/60fps, 1080p@30/60/240fps, 720p@960fps, HDR10+, stereo sound rec., gyro-EIS & OIS SELFIE CAMERA — Single: 10 MP, f/2.2, 26mm (wide), 1/3", 1.22µm, dual pixel PDAF; Features: HDR; Video: 4K@30/60fps, 1080p@30fps SOUND — Loudspeaker: Yes, with stereo speakers; 3.5mm jack: No; High-bitrate audio support; Tuned by AKG COMMS — WLAN: Wi-Fi 802.11 a/b/g/n/ac/6, dual-band, Wi-Fi Direct; Bluetooth: 5.0, A2DP, LE, aptX; Positioning: GPS, GLONASS, BDS, GALILEO; NFC: Yes; Radio: FM radio (USA & Canada only); USB: USB Type-C 3.1 FEATURES — Sensors: Fingerprint (under display, ultrasonic), accelerometer, gyro, proximity, compass, barometer; Samsung DeX, Samsung Wireless DeX (desktop experience support); ANT+ BATTERY — Type: Li-Ion 3500 mAh, non-removable; Charging: 25W wired, PD3.0; 12W wireless (Qi); 4.5W reverse wireless MISC — Colors: Aura Glow, Aura White, Aura Black, Aura Pink, Aura Red; Models: SM-N970F, SM-N970U, SM-N970U1, SM-N9700, SM-N970W, SM-N9700, SM-N970N, SM-N970X; SAR: 0.85 W/kg (head) 1.08 W/kg (body); SAR EU: 0.21 W/kg (head) 1.52 W/kg (body); Price: About 590 EUR (showing the specification of a Samsung Galaxy Note10). *See* GSMARENA, *Specifications*, available at https://www.gsmarena.com/samsung_galaxy_note10-9788.php (last visited February 8, 2026).

[1] The term Accused Smartphones is defined as those smartphone products accused of infringement in the cover pleading of these contentions, and those further identified during discovery.

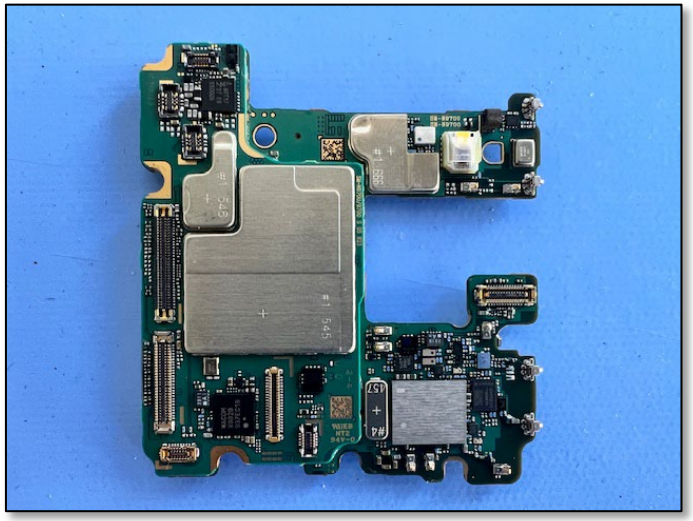
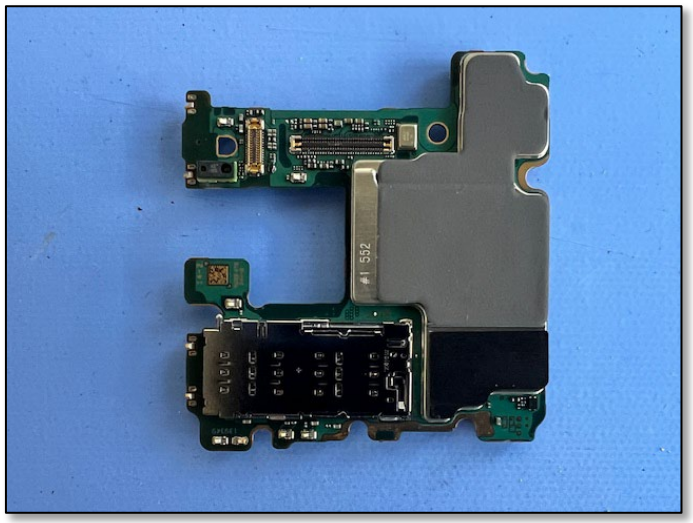
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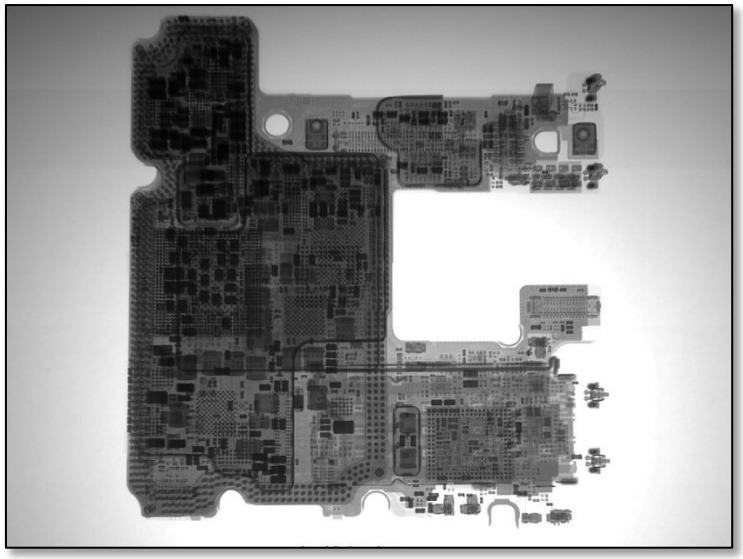
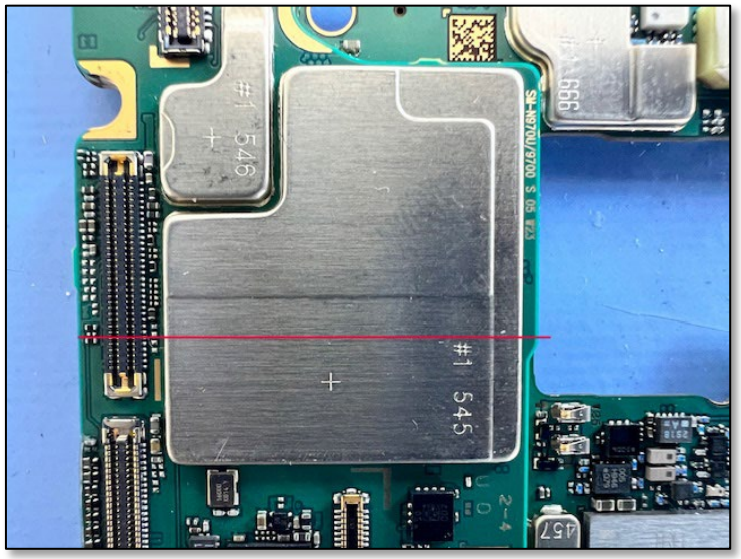
'202 Claim 1	Elements in Accused Smartphones
	 (showing a top-side view of a Samsung Galaxy Note10)  (showing a bottom-side view of a Samsung Galaxy Note10)

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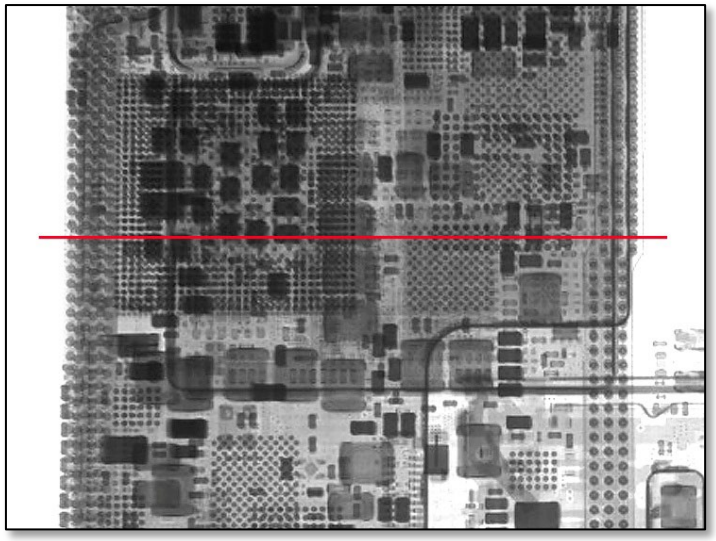
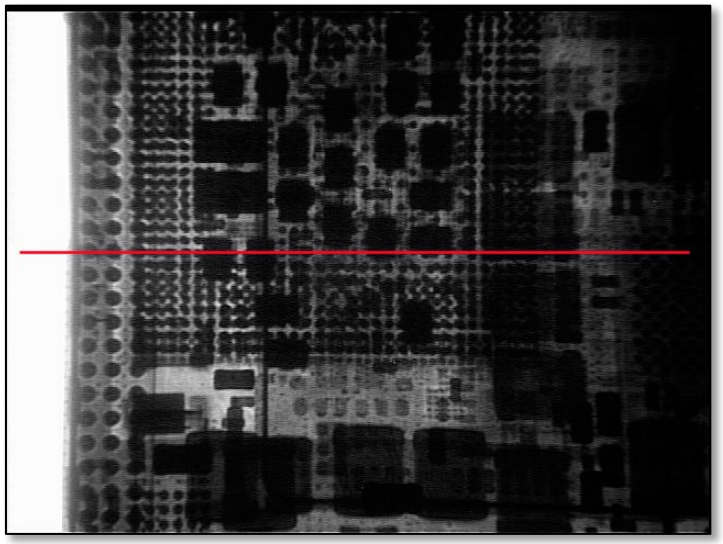
'202 Claim 1	Elements in Accused Smartphones
	 (showing a disassembled Samsung Galaxy Note10)  (showing a disassembled Samsung Galaxy Note10)

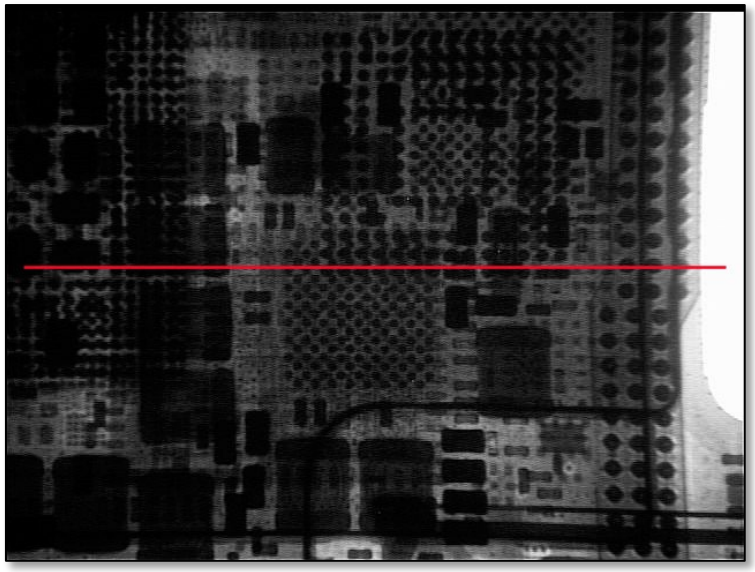
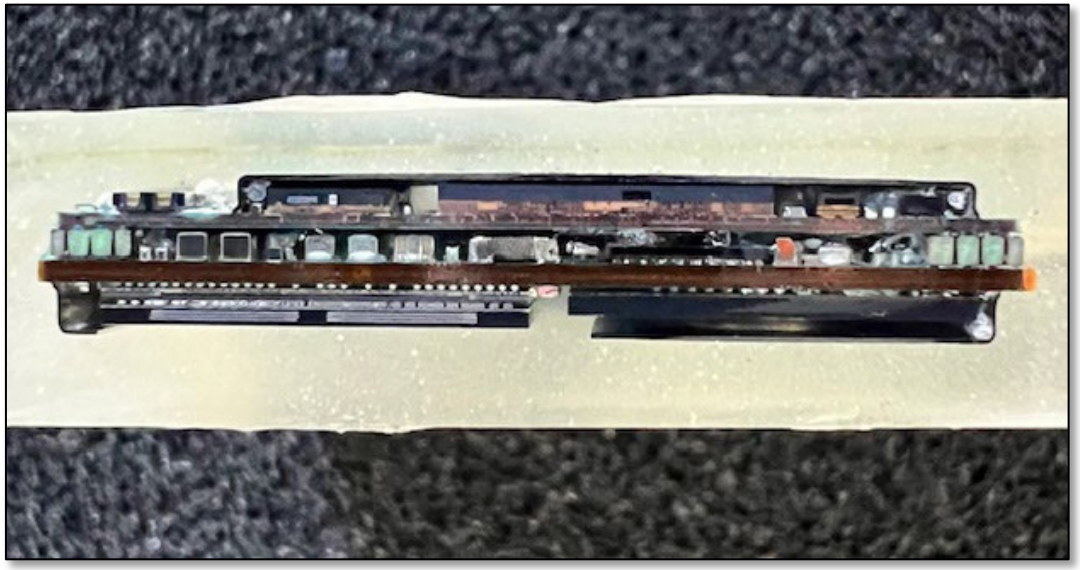
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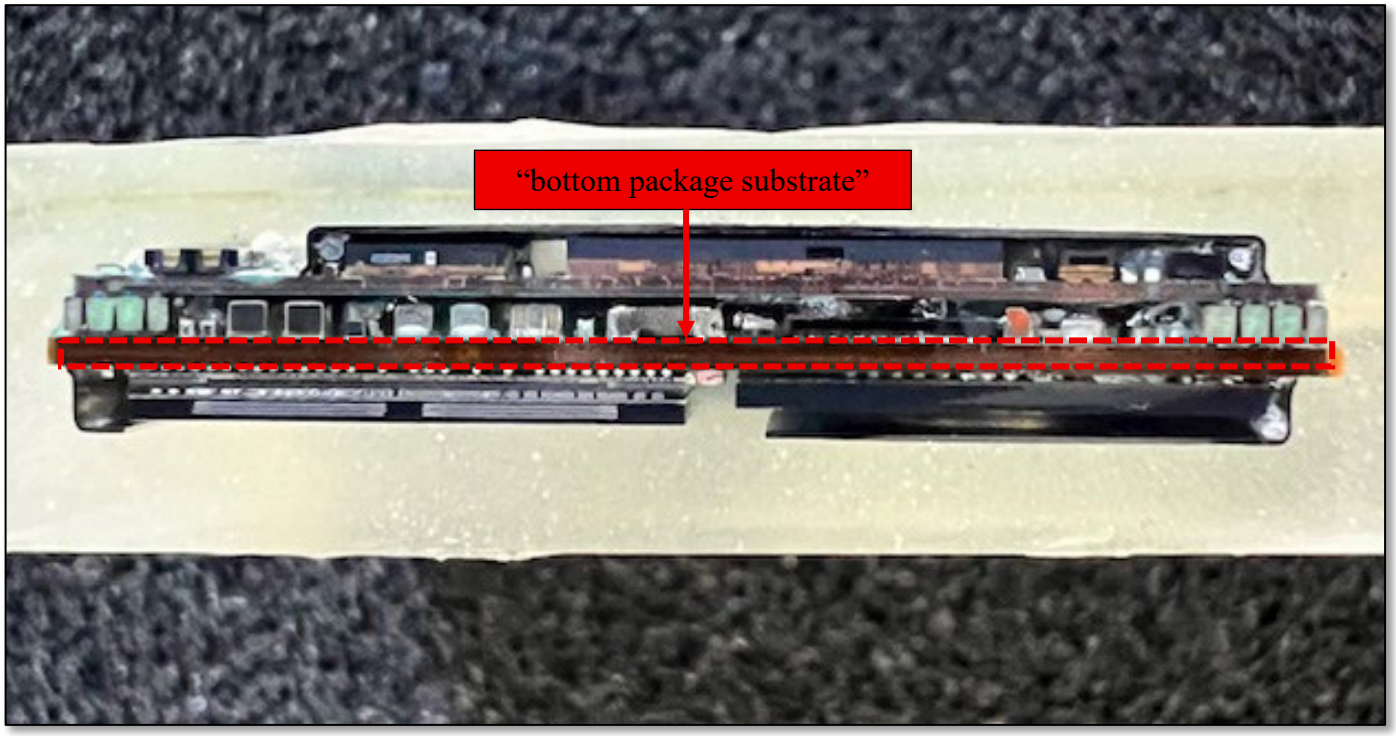
'202 Claim 1	Elements in Accused Smartphones
	For example, the Samsung Galaxy Note10 comprises a bottom package substrate:  (showing a top-side view of a motherboard in a Samsung Galaxy Note10)  (showing bottom-side view of a motherboard in a Samsung Galaxy Note10)

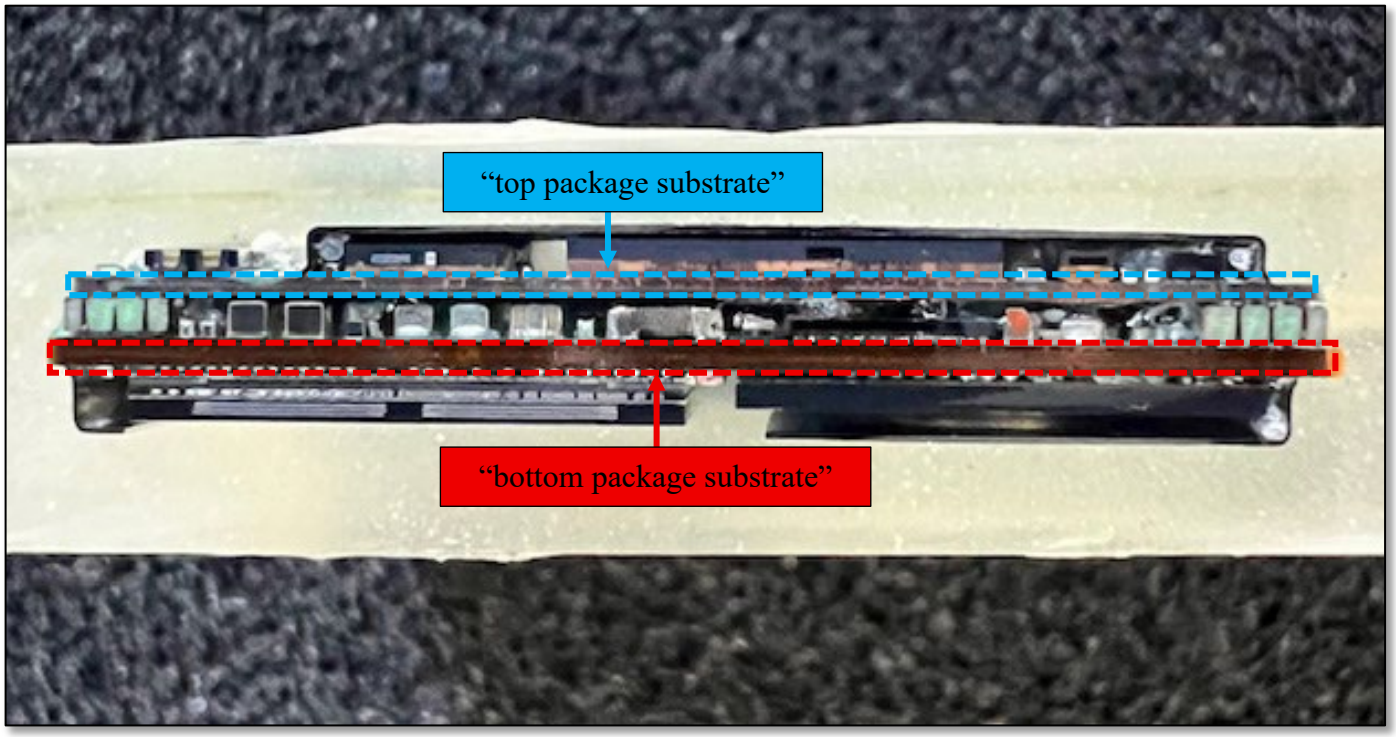
'202 Claim 1	Elements in Accused Smartphones
	 (showing an x-ray image of a logic motherboard in a Samsung Galaxy Note10)  (showing a top-side view of a motherboard with a red cross-section area in a Samsung Galaxy Note10)

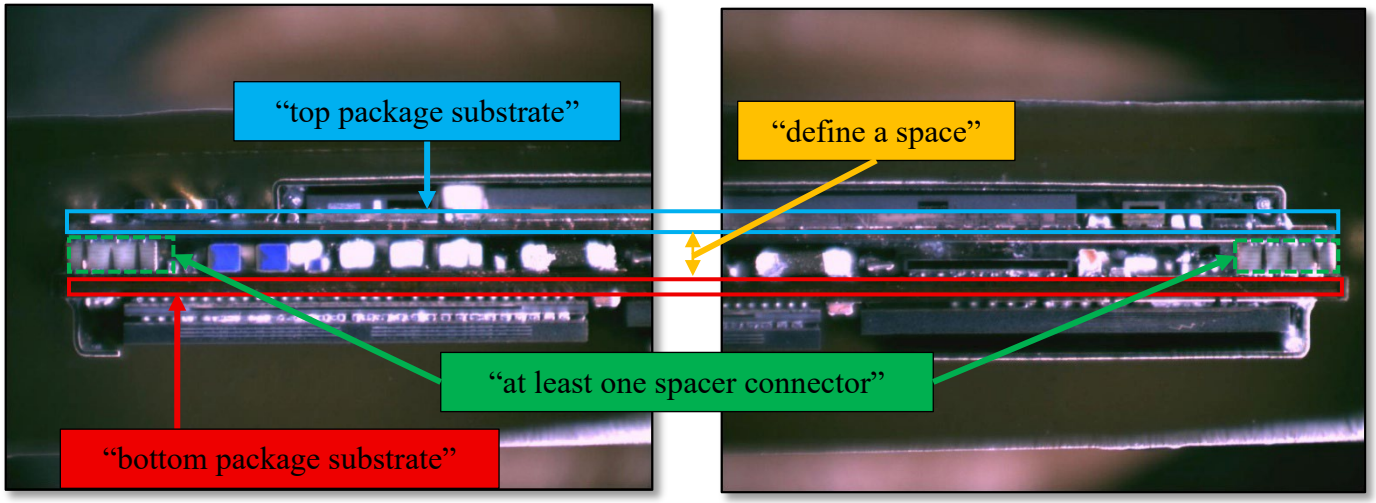
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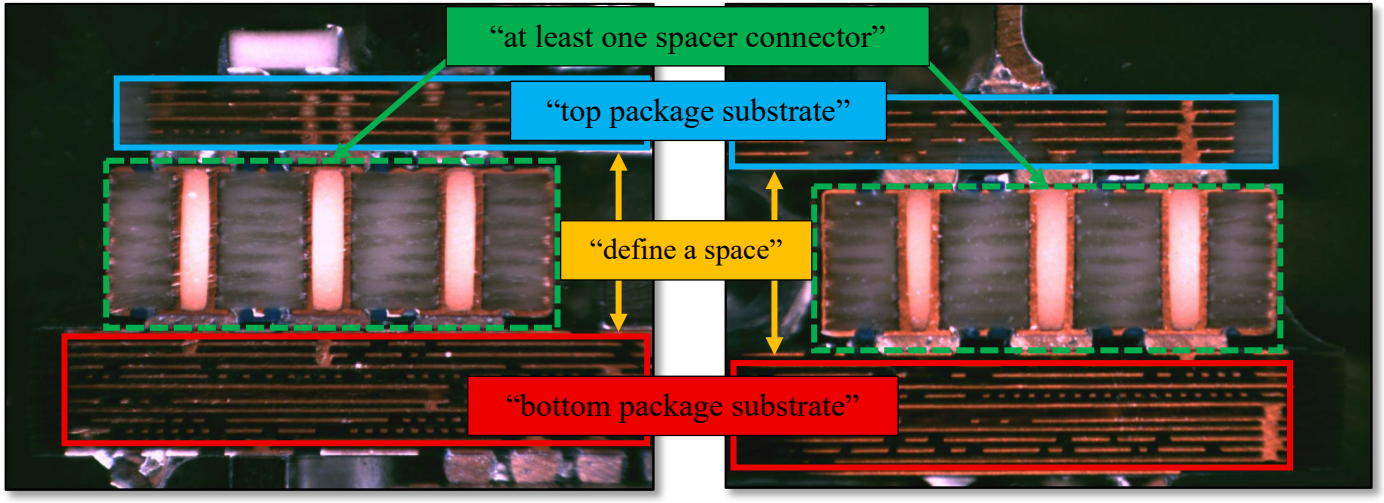
'202 Claim 1	Elements in Accused Smartphones
	 (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy Note10)  (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy Note10)

'202 Claim 1	Elements in Accused Smartphones
	 (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy Note10)  (optical view showing a cross-section view of a motherboard in a Samsung Galaxy Note10)

'202 Claim 1	Elements in Accused Smartphones
[1a] a bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate. For example, the Samsung Galaxy Note10 comprises a bottom package substrate:  (optical view showing a bottom package substrate)

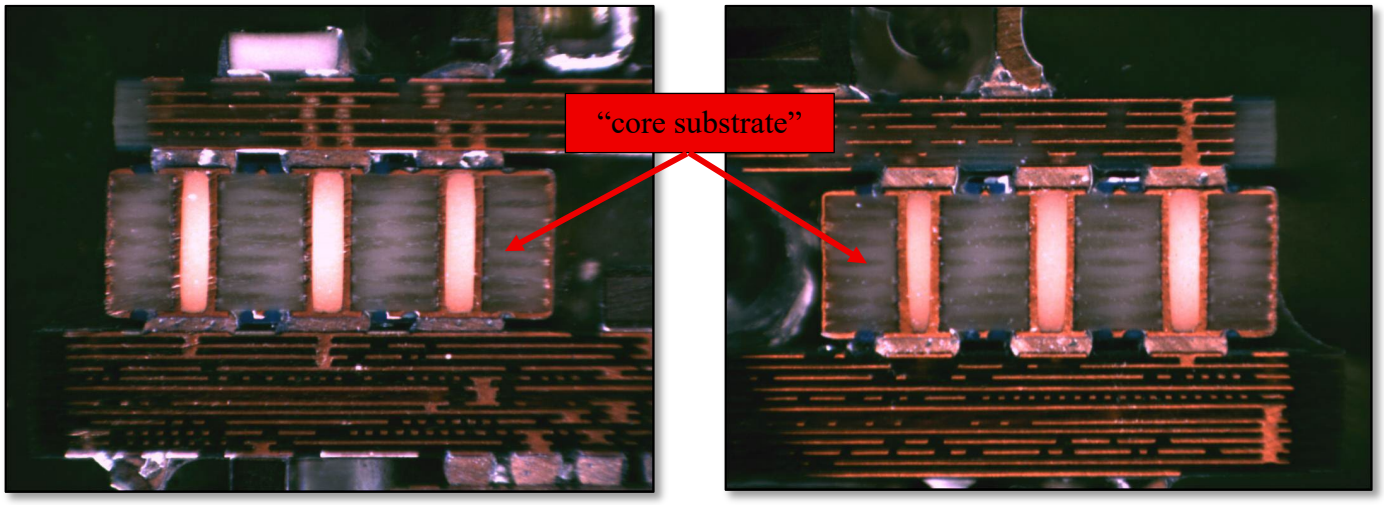
'202 Claim 1	Elements in Accused Smartphones
[1b] a top package substrate stacked on top of the bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top package substrate stacked on top of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate, stacked on top of the bottom package substrate. For example, the Samsung Galaxy Note10 comprises a top package substrate stacked on top of the bottom package substrate:  (optical view showing a top package substrate stacked on top of the bottom package substrate)

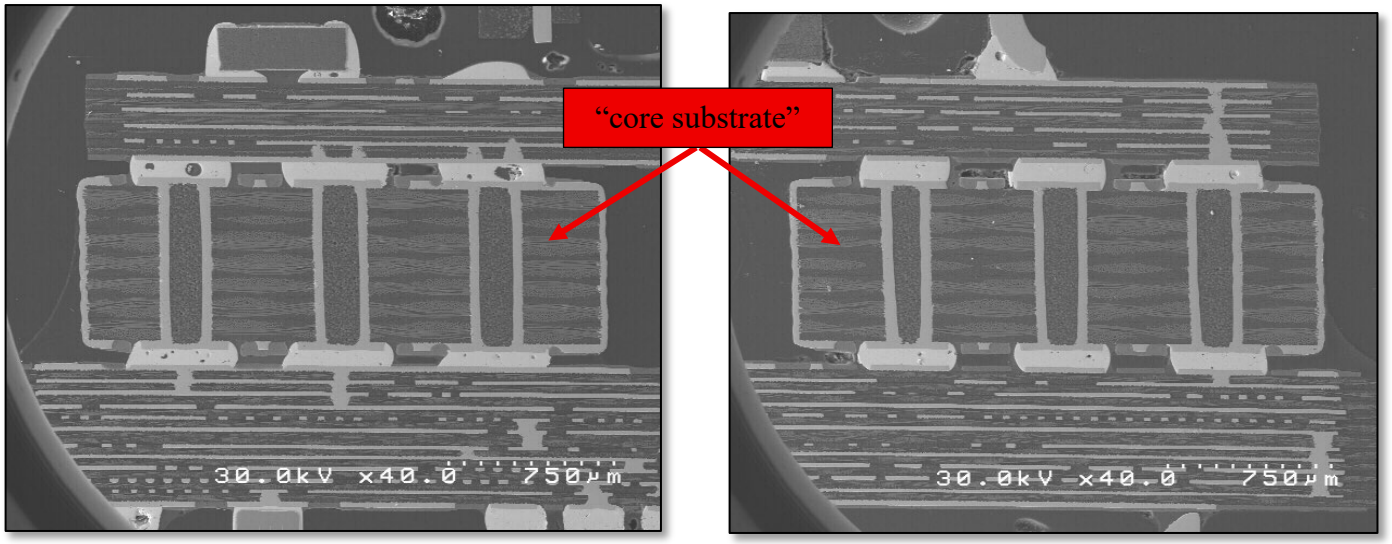
'202 Claim 1	Elements in Accused Smartphones
[1c] at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector, such as a metallic structure or any other suitable spacer connector. The at least one spacer connector is interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. Therefore, the at least one spacer connector separates the top package substrate from the bottom package substrate. For example, the Samsung Galaxy Note10 comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate:  (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

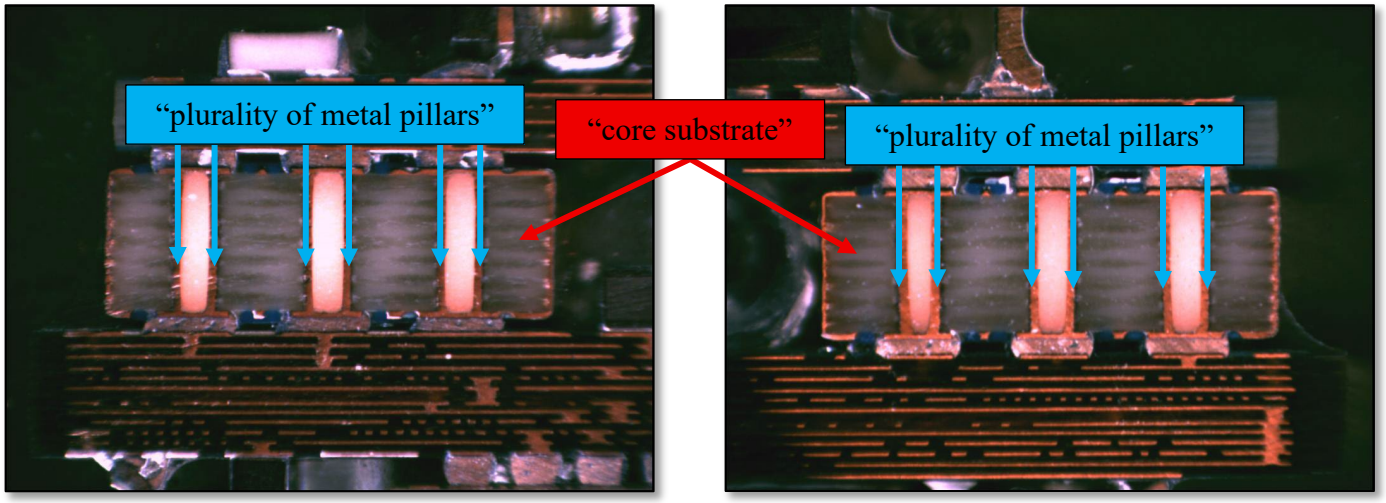
'202 Claim 1	Elements in Accused Smartphones
	 (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

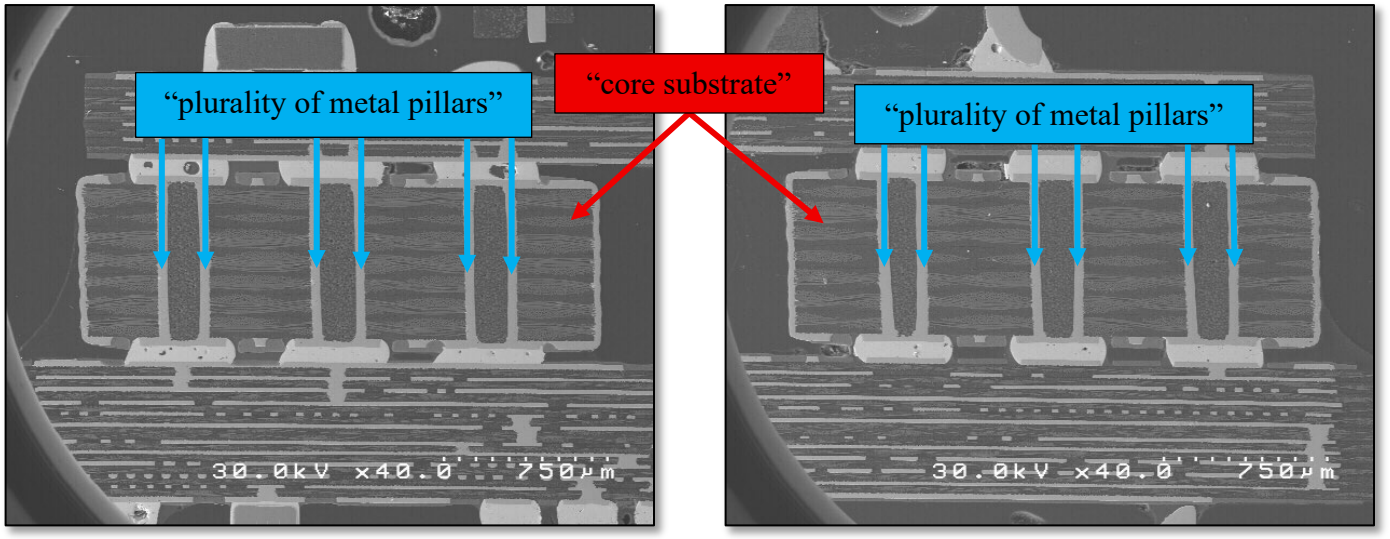
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'202 Claim 1	Elements in Accused Smartphones
[1d-pre] wherein the spacer connector comprises:	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. See below.

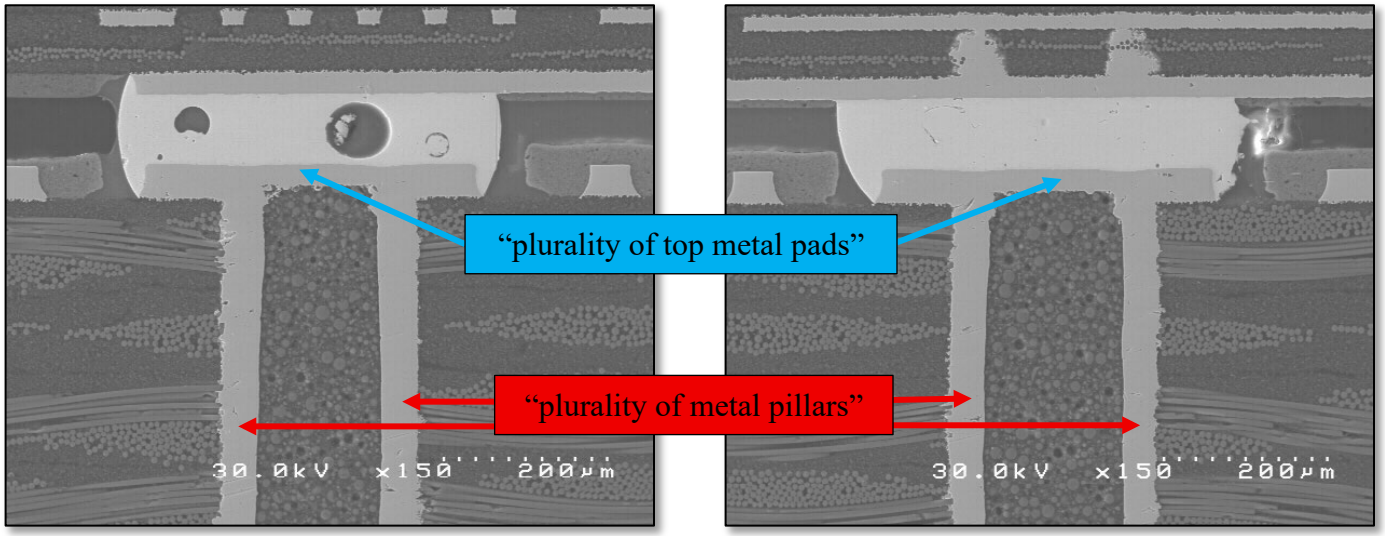
'202 Claim 1	Elements in Accused Smartphones
[1d-1] a core substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a core substrate, such as a silicon substrate or any other suitable core substrate. For example, the at least one spacer connector of the Samsung Galaxy Note10 comprises a core substrate:  (optical view showing the core substrate)

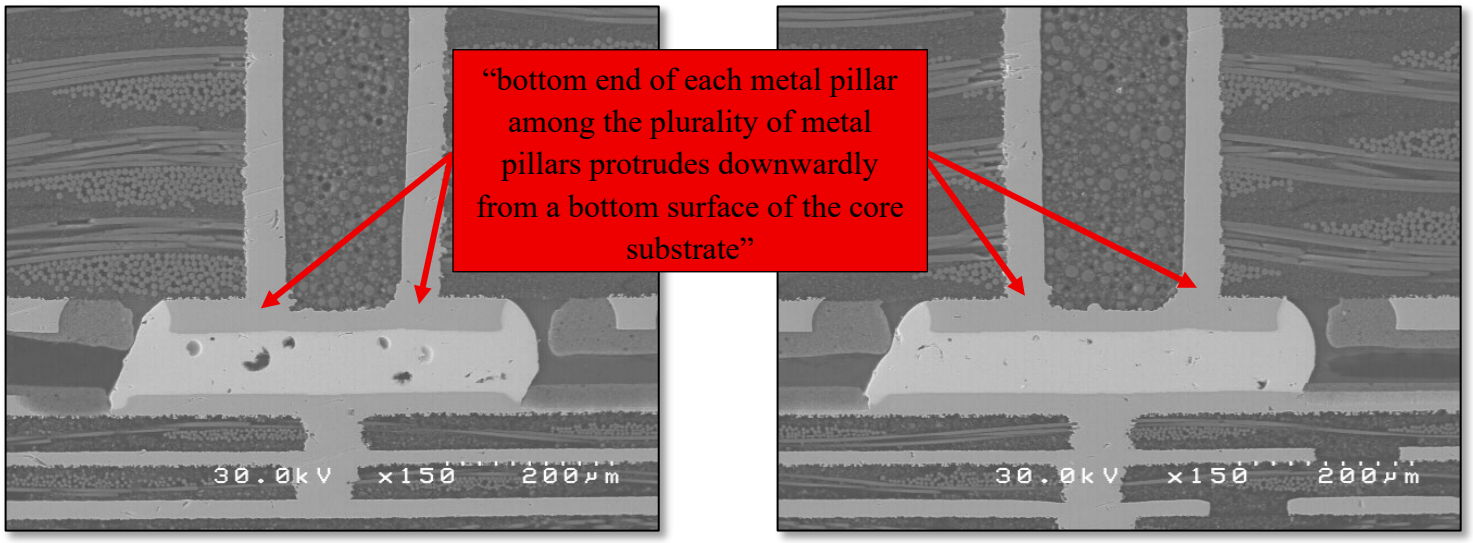
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the core substrate)

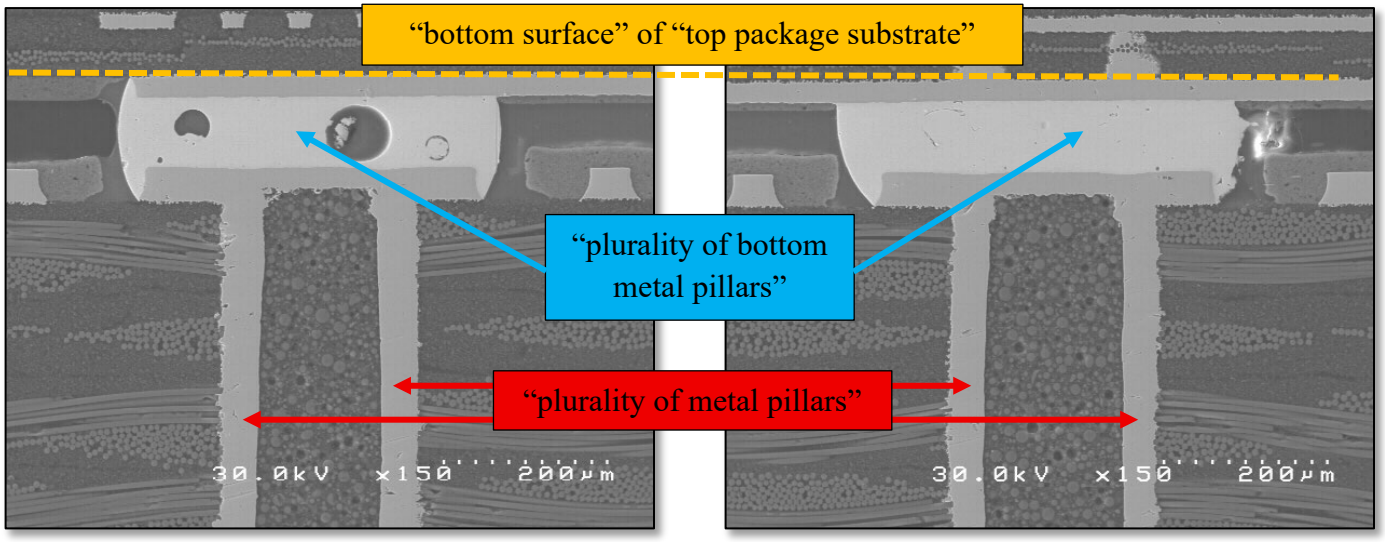
'202 Claim 1	Elements in Accused Smartphones
[1d-2] a plurality of metal pillars, each passing through the core substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of metal pillars, each passing through the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of metal pillars, such as copper pillars or any other suitable metal pillars. Each of the plurality of metal pillars passes through (*e.g.*, intersects) the core substrate. For example, the at least one spacer connector of the Samsung Galaxy Note10 comprises a plurality of metal pillars, each passing through the core substrate:  (optical view showing the plurality of metal pillars, each passing through the core substrate)

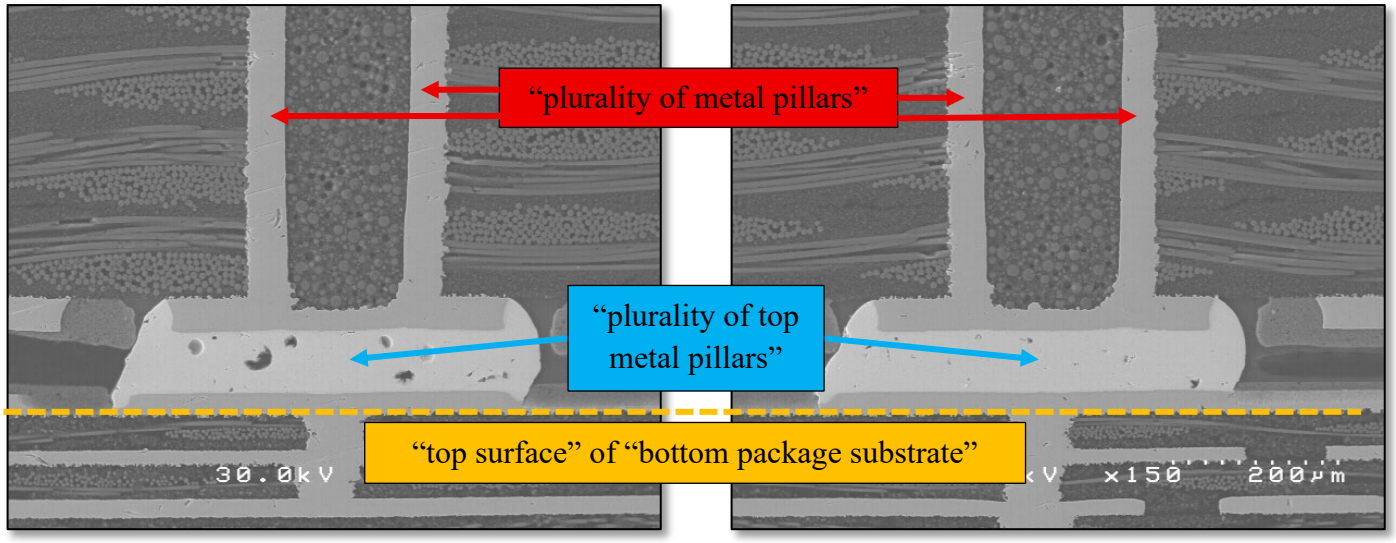
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the plurality of metal pillars, each passing through the core substrate)

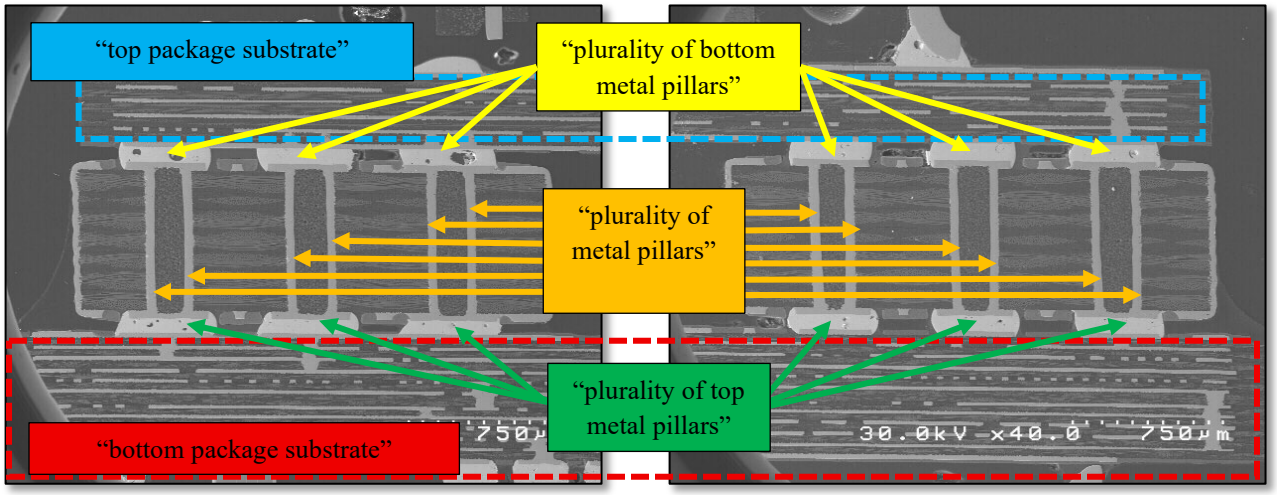
Samsung v. TopWire | IPR2026-00324
CONFIDENTIAL
Ex. 2004

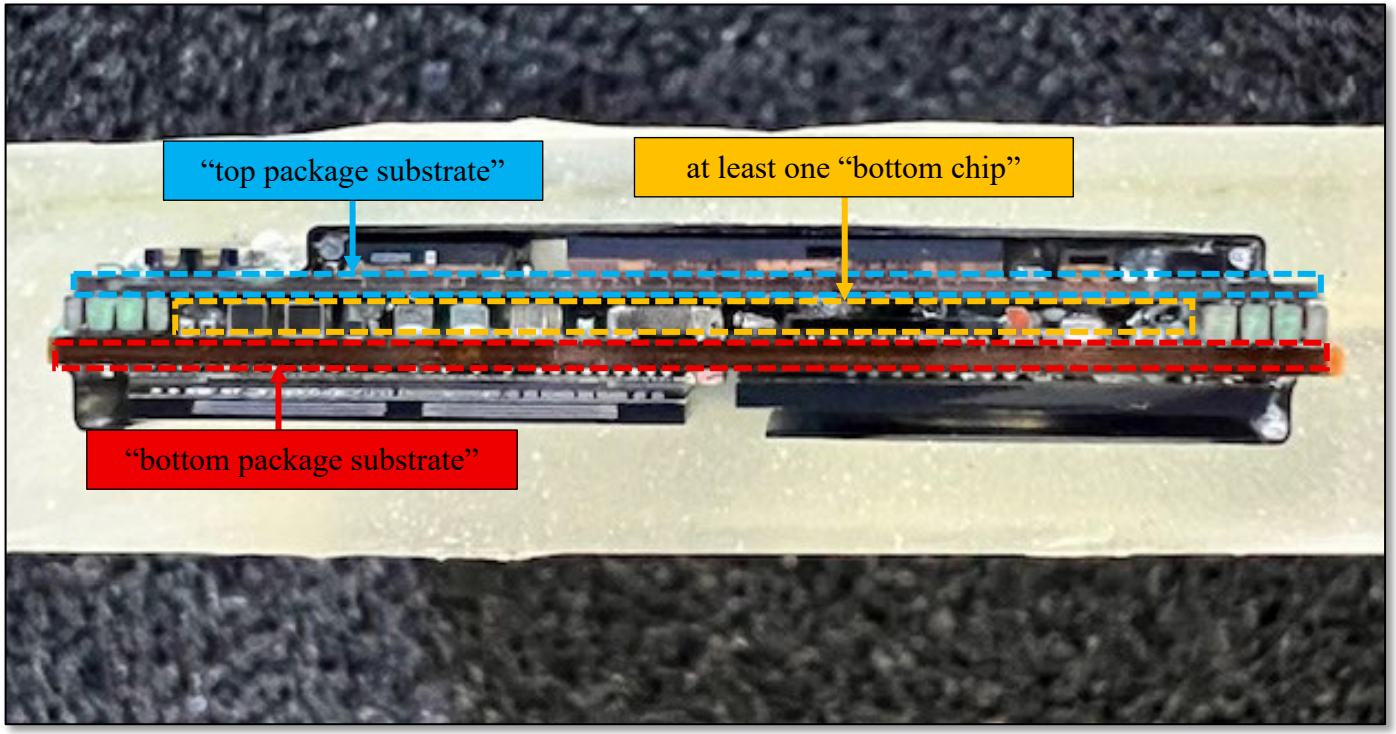
'202 Claim 1	Elements in Accused Smartphones
[1d-3] a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of top metal pads, such as copper metal pads or any other suitable metal pads. Each of the plurality of metal pads are connected to a top end of a corresponding metal pillar among the plurality of metal pillars. For example, the at least one spacer connector of the Samsung Galaxy Note10 comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars:  (scanning electron microscope ("SEM") view showing the plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars)

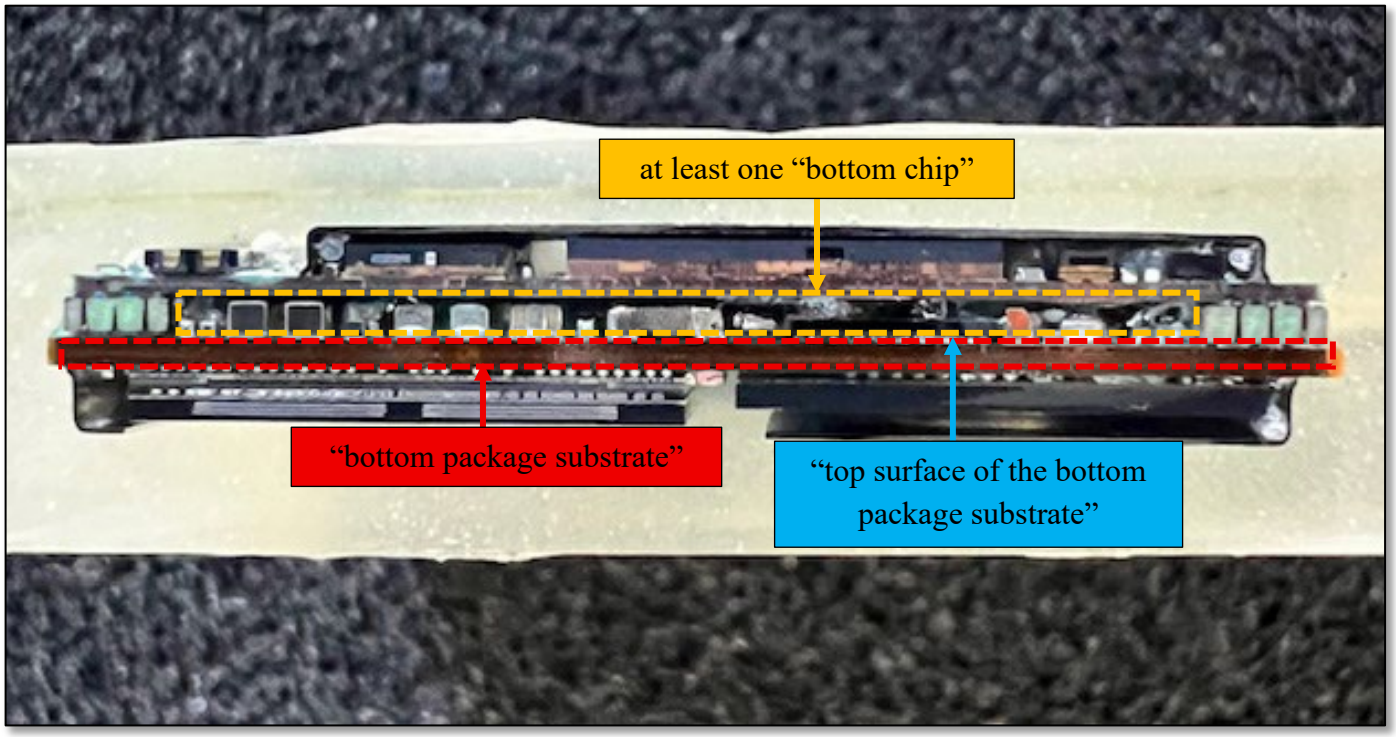
'202 Claim 1	Elements in Accused Smartphones
[1d-4] wherein a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. In the at least one spacer connector of Samsung's Accused Smartphones, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. In the at least one spacer connector, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from (*e.g.*, extends past) a bottom surface of the core substrate. For example, in the at least one spacer connector of the Samsung Galaxy Note10, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate:  (scanning electron microscope ("SEM") view showing the bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate)

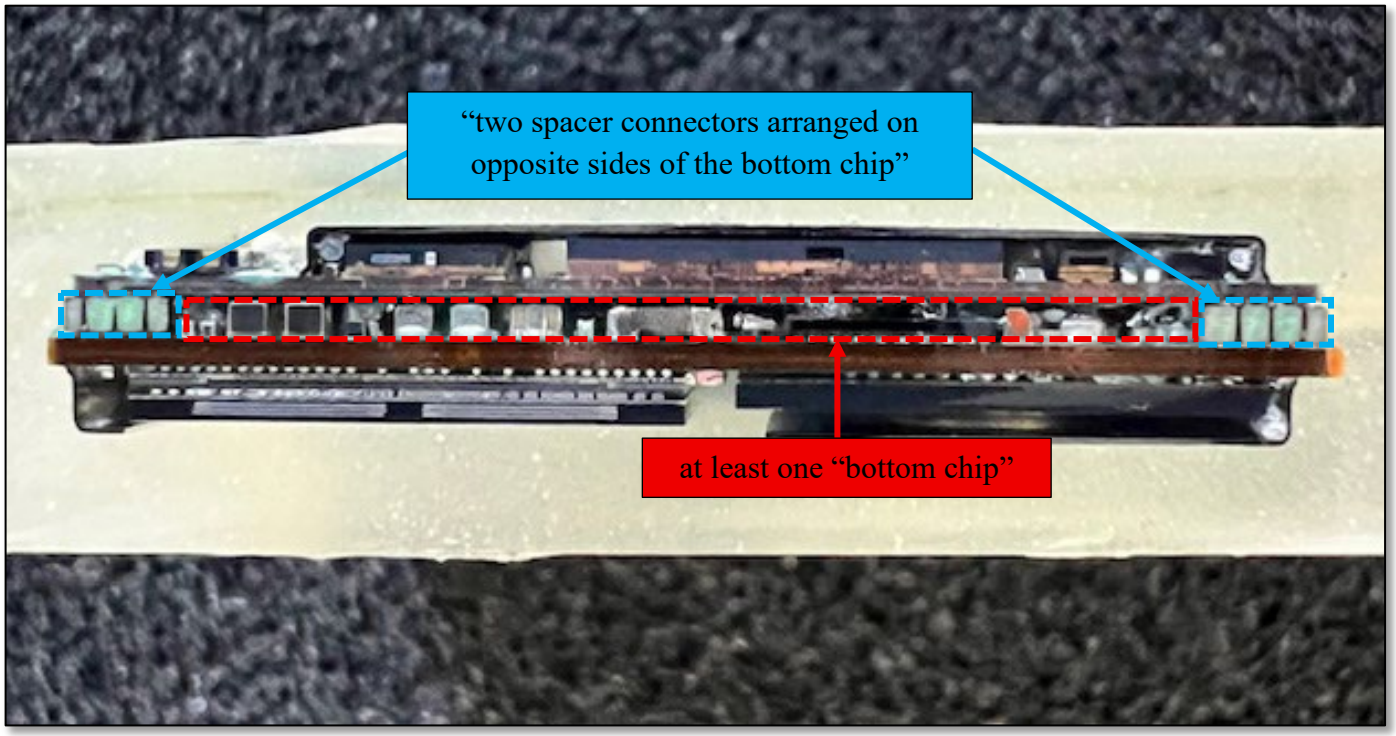
'202 Claim 1	Elements in Accused Smartphones
[1e] the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate has a bottom surface. Additionally, a plurality of bottom metal pillars, such as tin metal pillars or any other suitable bottom metal pillars, are connected to the bottom surface of the top package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the top package substrate of the Samsung Galaxy Note10 has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

'202 Claim 1	Elements in Accused Smartphones
[1f] the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom package substrate of Samsung's Accused Smartphones has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom package substrate has a top surface. Additionally, a plurality of top metal pillars, such as tin metal pillars or any other suitable top metal pillars, are connected to the top surface of the bottom package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the bottom package substrate of the Samsung Galaxy Note10 has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

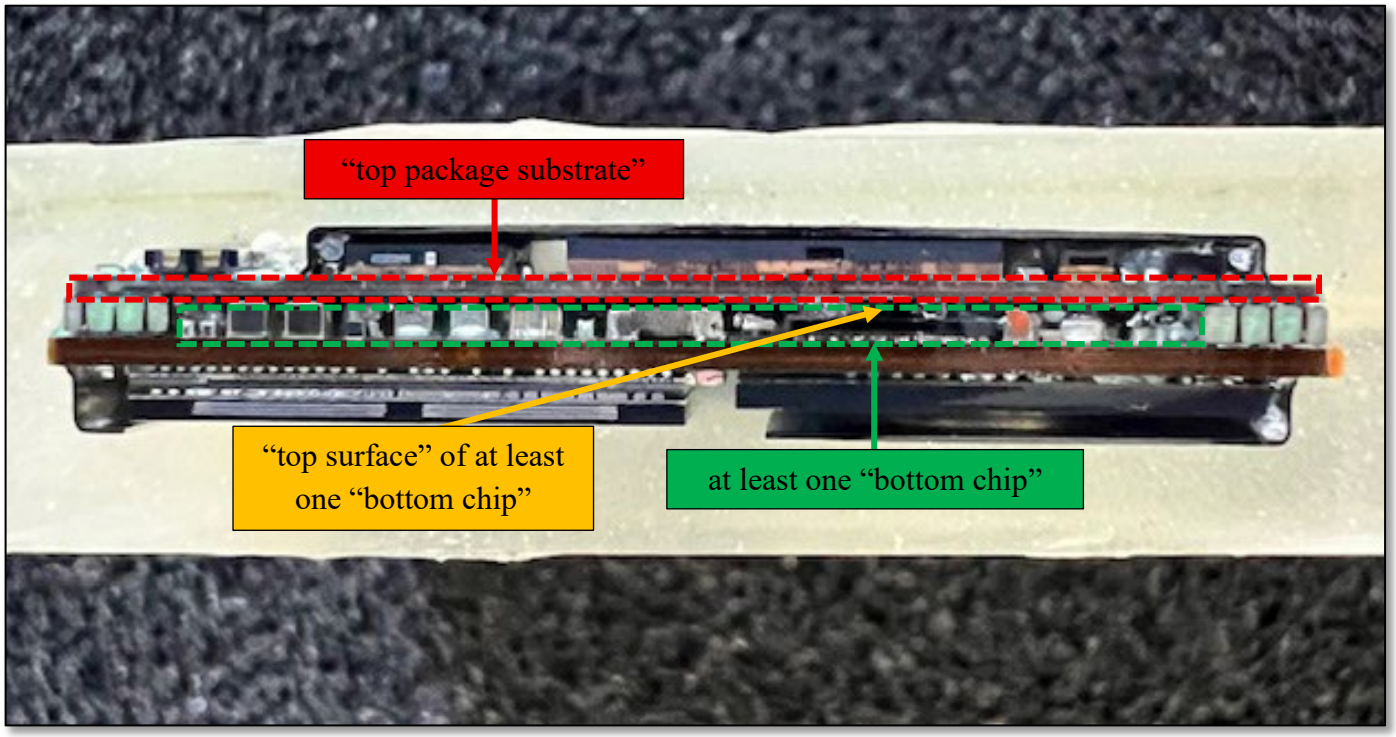
'202 Claim 1	Elements in Accused Smartphones
[1g] the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate is electrically coupled to the bottom package substrate. Additionally, current flows between the top package substrate and the bottom package substrate via the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate, all of which are electrically coupled together. For example, the top package substrate of the Samsung Galaxy Note10 is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate:  (scanning electron microscope ("SEM") view showing the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1h] a bottom chip arranged in the space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, arranged between the space between the bottom package substrate and the top package substrate formed by the at least one spacer connector. For example, the Samsung Galaxy Note10 comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate:  (optical view showing the bottom chip arranged in the space between the bottom package substrate and the top package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1i] the bottom chip is mounted to the top surface of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip mounted to the top surface of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, mounted to the top surface of the bottom package substrate. For example, the bottom chip of the Samsung Galaxy Note10 is mounted to the top surface of the bottom package substrate:  (optical view showing the bottom chip mounted to the top surface of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1j] the at least one spacer connector comprises two spacer connectors arranged on opposite sides of the bottom chip.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises two spacer connectors arranged on opposite sides of the bottom chip. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the at least one spacer connector includes two spacer connectors arranged on opposite sides of the bottom chip. For example, the at least one spacer connector of the Samsung Galaxy Note10 comprises two spacer connectors arranged on opposite sides of the bottom chip:  (optical view showing the at least one spacer connector comprising two spacer connectors arranged on opposite sides of the bottom chip)

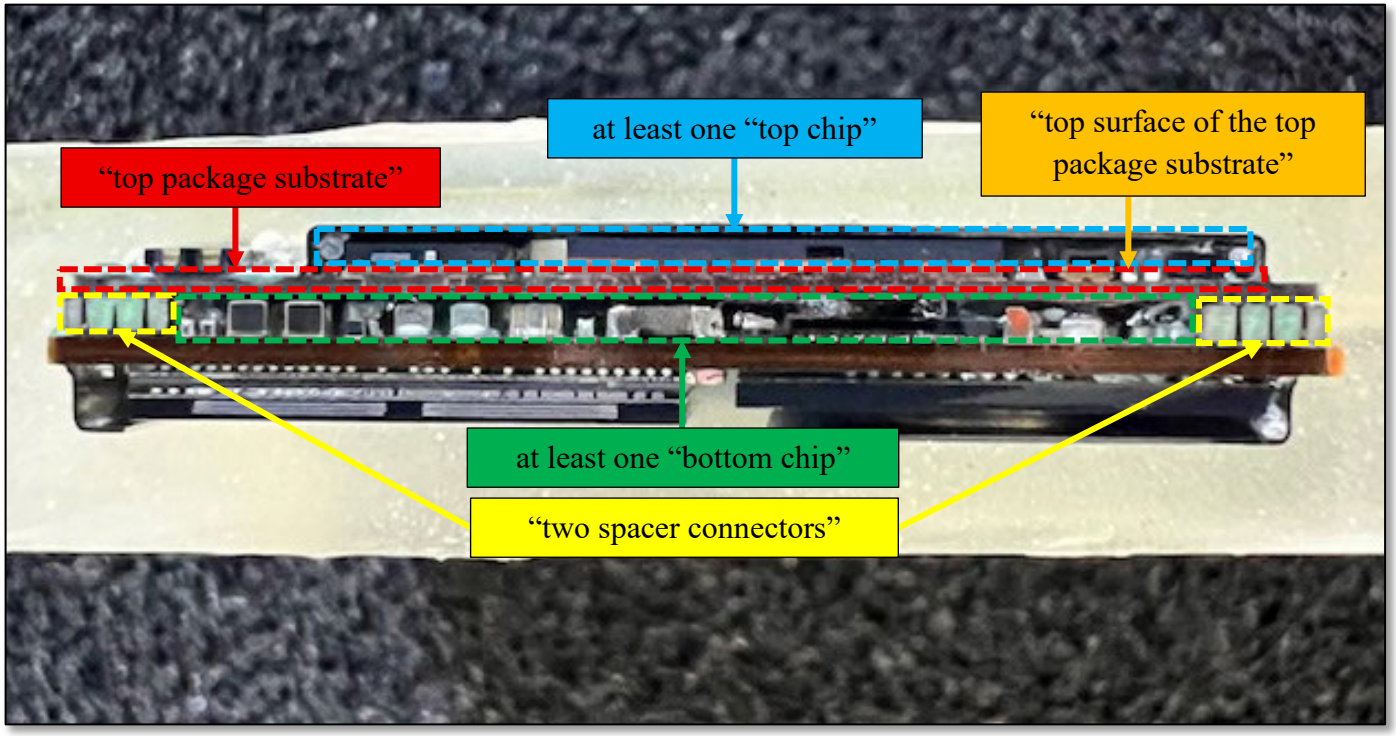
"2. The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate."

'202 Claim 2	Elements in Accused Smartphones
[2] The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom chip of Samsung's Accused Smartphones has a top surface that is spaced downwardly from the bottom surface of the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom chip has a top surface that is spaced downwardly from the bottom surface of the top package substrate. For example, in the Samsung Galaxy Note10, a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate:  (optical view showing the top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate)

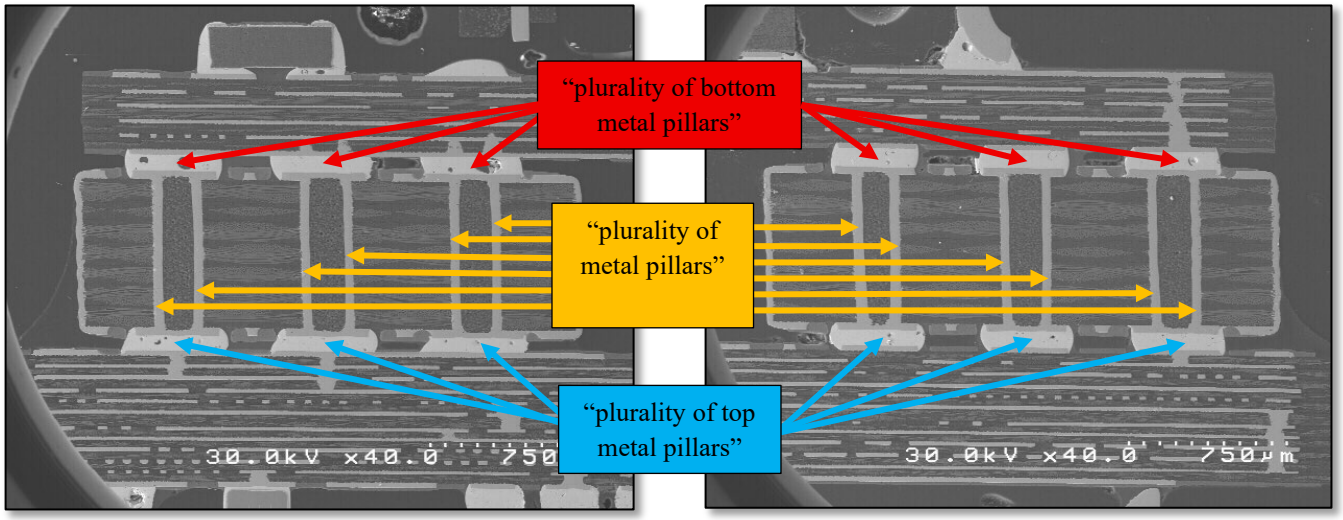
"3. The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors."

'202 Claim 3	**Elements in Accused Smartphones**
[3] The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors.	TopWire incorporates the disclosures set forth for Claims 1 and 2 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top chip, such as a memory chip or any other suitable top chip, mounted to the top surface of the top package substrate. The top package substrate is stacked on top of the bottom package substrate such that the top chip overlaps the bottom chip and each of the two spacer connectors. For example, the Samsung Galaxy Note10 comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors:

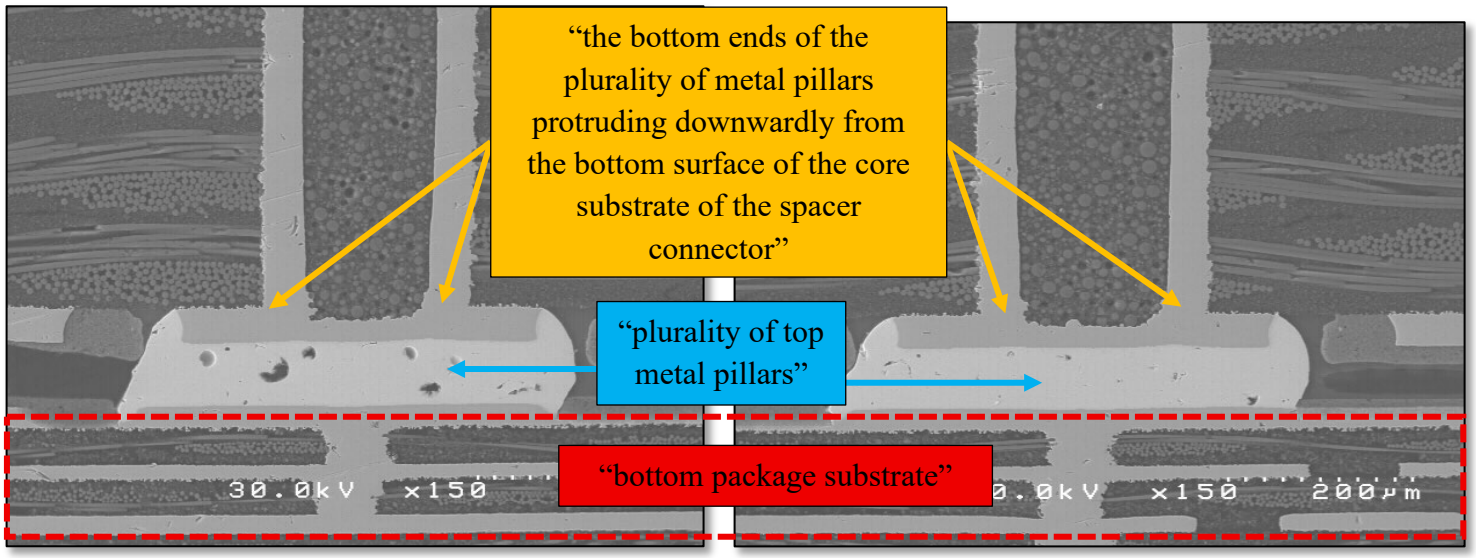
"3. The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors."

'202 Claim 3	Elements in Accused Smartphones
	 (optical view showing the top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors)

"4. The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate."

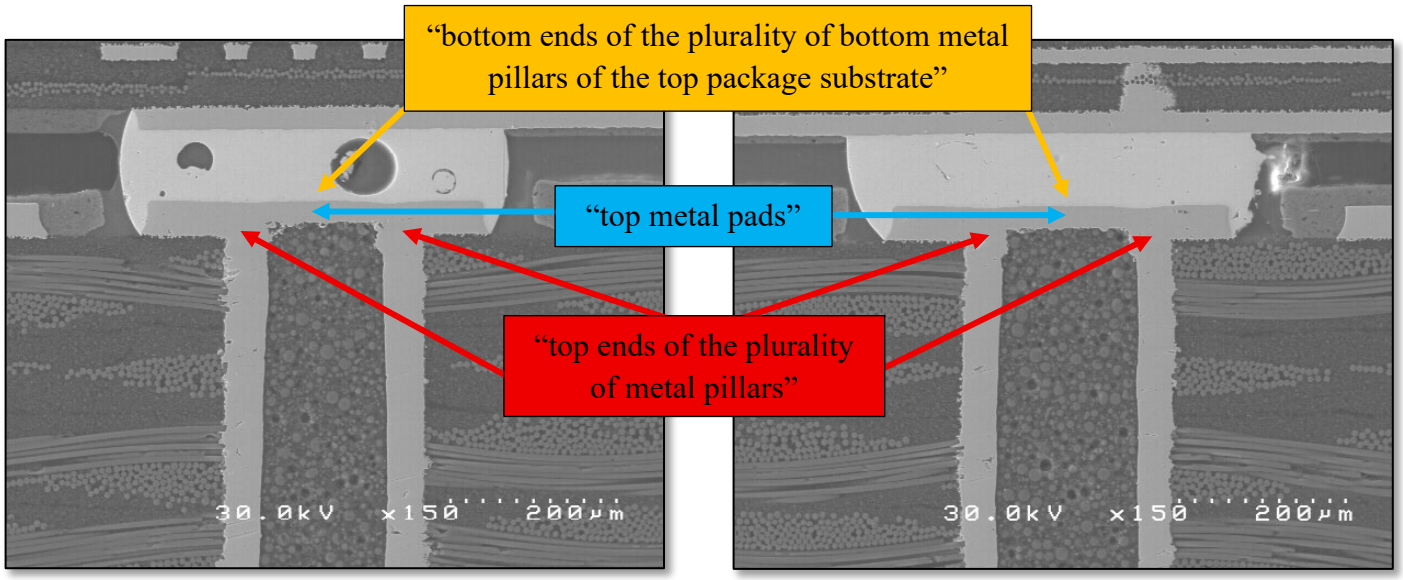
'202 Claim 4	Elements in Accused Smartphones
[4] The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. Each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned (*e.g.*, vertically aligned) with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. For example, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy Note10 is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate:  (scanning electron microscope ("SEM") view showing each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate)

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
[6a] The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in Samsung's Accused Smartphones are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector. The plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. For example, the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in the Samsung Galaxy Note10 are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate: 

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
	(scanning electron microscope ("SEM") view showing the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate)

'202 Claim 6	Elements in Accused Smartphones
[**6b**] bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector.	TopWire incorporates the disclosures set forth for Claims 1, 4, and 6 as if set forth herein. The bottom ends of the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the bottom ends of the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy Note10 are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:  (scanning electron microscope ("SEM") view showing bottom ends of the plurality of bottom metal pillars of the top package substrate that are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

'202 Claim 9	Elements in Accused Smartphones
[9] The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The spacer connector in Samsung's Accused Smartphones further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a spacer connector. The spacer connector further includes a plurality of bottom metal pads, such as copper metal pads or any other suitable bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars. The bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the spacer connector in the Samsung Galaxy Note10 further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

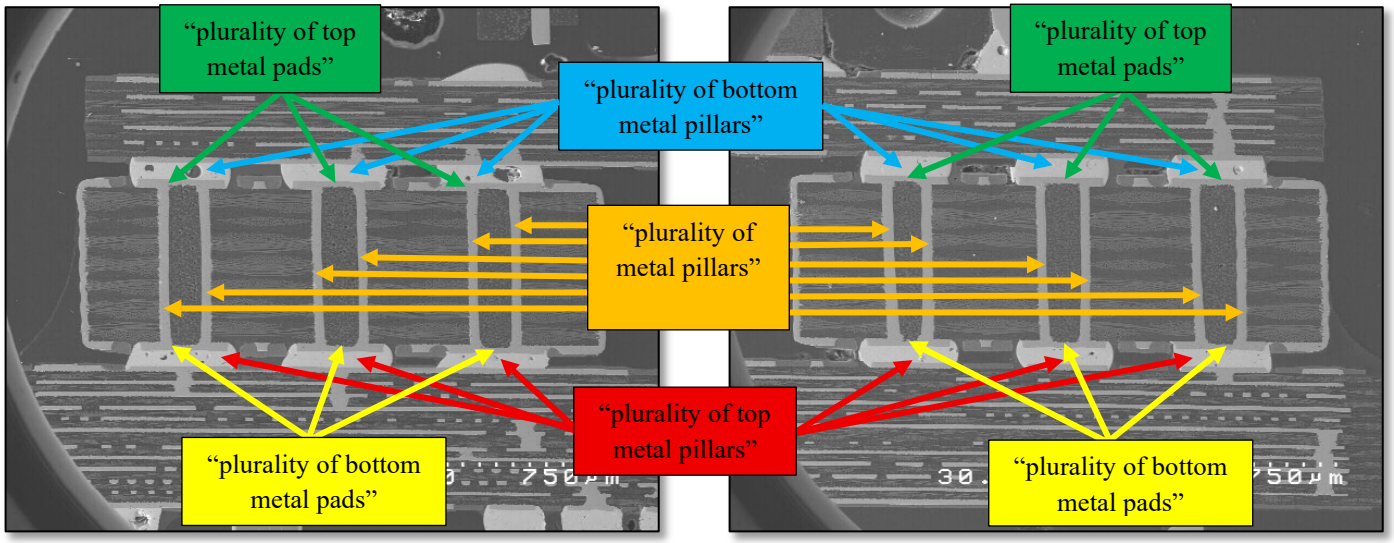
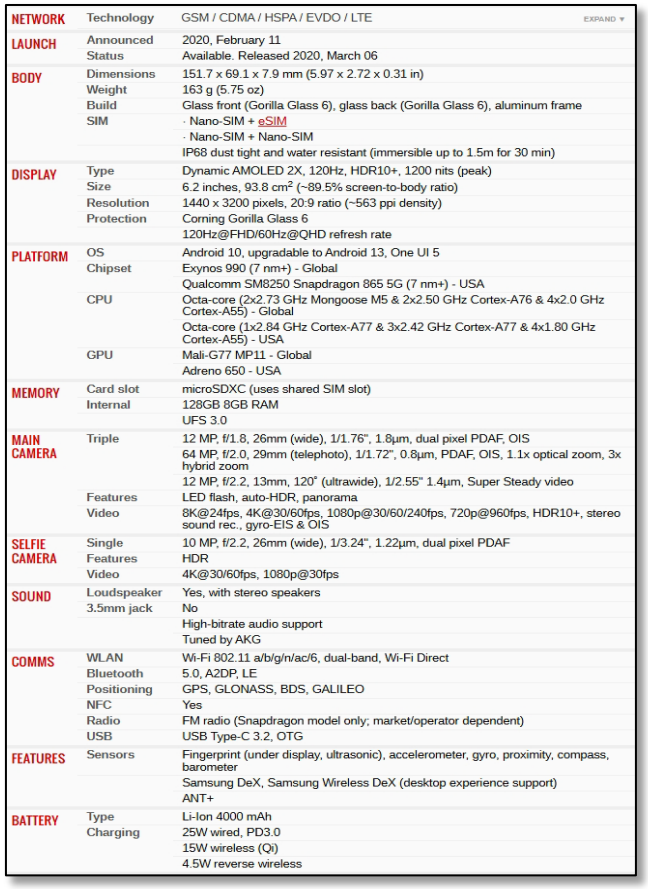
'202 Claim 9	Elements in Accused Smartphones
the corresponding top metal pads of the spacer connector.	 (scanning electron microscope ("SEM") view showing the spacer connector further comprising a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars being connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate being connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

EXHIBIT B

Exhibit B – U.S. Patent No. 9,859,202 (Accused Smartphones)
"1. A structure, comprising:"

'202 Claim 1	Elements in Accused Smartphones
[1-pre] A structure, comprising:	To the extent the preamble is limiting, Samsung's Accused Smartphones[1] comprise a structure. *E.g.*, Samsung's Accused Smartphones incorporate structures, such as motherboards (sometimes also referred to as "logic boards"). The motherboards in Samsung's Accused Smartphones contain integrated circuits (sometimes also referred to as "chips"). The motherboard performs many core functions of Samsung's Accused Smartphones.  (showing the specification of a Samsung Galaxy S20). *See* GSMARENA, *Specifications*, available at https://www.gsmarena.com/samsung_galaxy_s20-10081.php (last visited January 21, 2026).

NETWORK	Technology	GSM / CDMA / HSPA / EVDO / LTE
LAUNCH	Announced	2020, February 11
	Status	Available. Released 2020, March 06
BODY	Dimensions	151.7 x 69.1 x 7.9 mm (5.97 x 2.72 x 0.31 in)
	Weight	163 g (5.75 oz)
	Build	Glass front (Gorilla Glass 6), glass back (Gorilla Glass 6), aluminum frame
	SIM	· Nano-SIM + eSIM · Nano-SIM + Nano-SIM IP68 dust tight and water resistant (immersible up to 1.5m for 30 min)
DISPLAY	Type	Dynamic AMOLED 2X, 120Hz, HDR10+, 1200 nits (peak)
	Size	6.2 inches, 93.8 cm² (~89.5% screen-to-body ratio)
	Resolution	1440 x 3200 pixels, 20:9 ratio (~563 ppi density)
	Protection	Corning Gorilla Glass 6 120Hz@FHD/60Hz@QHD refresh rate
PLATFORM	OS	Android 10, upgradable to Android 13, One UI 5
	Chipset	Exynos 990 (7 nm+) - Global Qualcomm SM8250 Snapdragon 865 5G (7 nm+) - USA
	CPU	Octa-core (2x2.73 GHz Mongoose M5 & 2x2.50 GHz Cortex-A76 & 4x2.0 GHz Cortex-A55) - Global Octa-core (1x2.84 GHz Cortex-A77 & 3x2.42 GHz Cortex-A77 & 4x1.80 GHz Cortex-A55) - USA
	GPU	Mali-G77 MP11 - Global Adreno 650 - USA
MEMORY	Card slot	microSDXC (uses shared SIM slot)
	Internal	128GB 8GB RAM UFS 3.0
MAIN CAMERA	Triple	12 MP, f/1.8, 26mm (wide), 1/1.76", 1.8µm, dual pixel PDAF, OIS 64 MP, f/2.0, 29mm (telephoto), 1/1.72", 0.8µm, PDAF, OIS, 1.1x optical zoom, 3x hybrid zoom 12 MP, f/2.2, 13mm, 120° (ultrawide), 1/2.55" 1.4µm, Super Steady video
	Features	LED flash, auto-HDR, panorama
	Video	8K@24fps, 4K@30/60fps, 1080p@30/60/240fps, 720p@960fps, HDR10+, stereo sound rec., gyro-EIS & OIS
SELFIE CAMERA	Single	10 MP, f/2.2, 26mm (wide), 1/3.24", 1.22µm, dual pixel PDAF
	Features	HDR
	Video	4K@30/60fps, 1080p@30fps
SOUND	Loudspeaker	Yes, with stereo speakers
	3.5mm jack	No High-bitrate audio support Tuned by AKG
COMMS	WLAN	Wi-Fi 802.11 a/b/g/n/ac/6, dual-band, Wi-Fi Direct
	Bluetooth	5.0, A2DP, LE
	Positioning	GPS, GLONASS, BDS, GALILEO
	NFC	Yes
	Radio	FM radio (Snapdragon model only; market/operator dependent)
	USB	USB Type-C 3.2, OTG
FEATURES	Sensors	Fingerprint (under display, ultrasonic), accelerometer, gyro, proximity, compass, barometer Samsung DeX, Samsung Wireless DeX (desktop experience support) ANT+
BATTERY	Type	Li-Ion 4000 mAh
	Charging	25W wired, PD3.0 15W wireless (Qi) 4.5W reverse wireless

[1] The term Accused Smartphones is defined as those smartphone products accused of infringement in the cover pleading of these contentions, and those further identified during discovery.

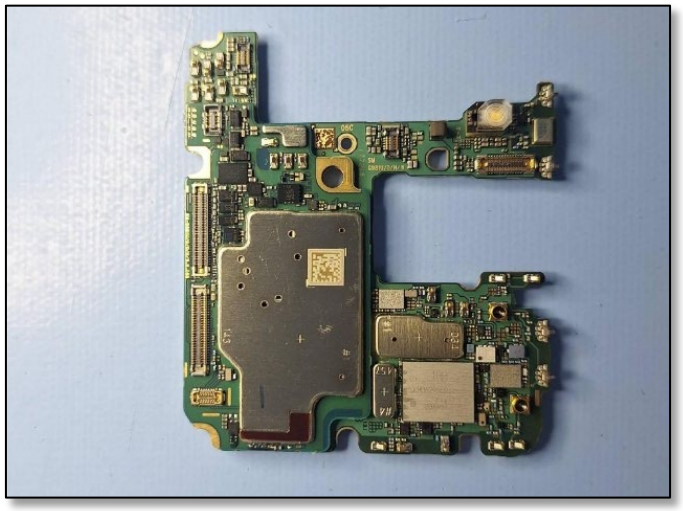
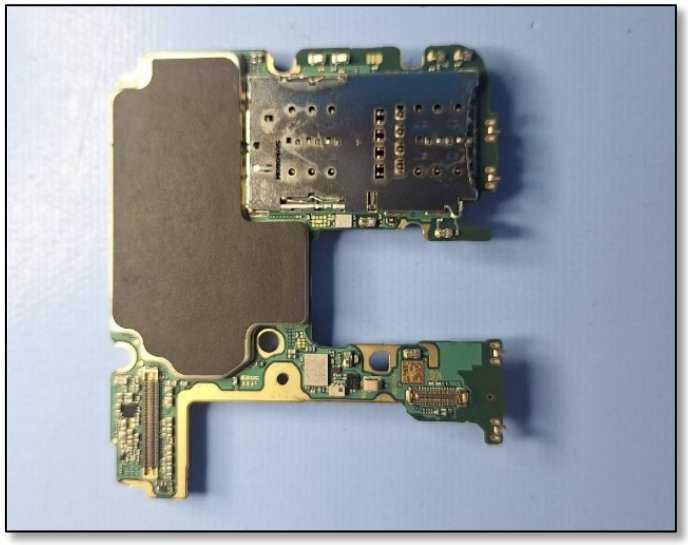
Samsung v. TopWire | IPR2026-00324
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'202 Claim 1	Elements in Accused Smartphones
	 (showing a top-side view of a Samsung Galaxy S20)  (showing a bottom-side view of a Samsung Galaxy S20)

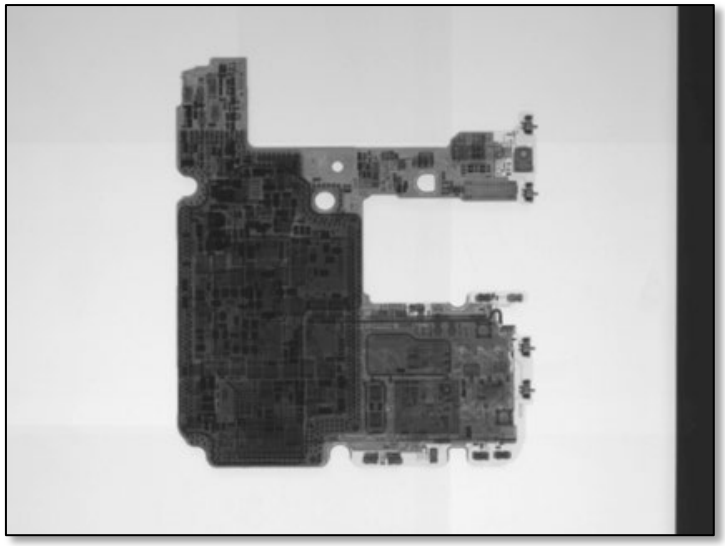
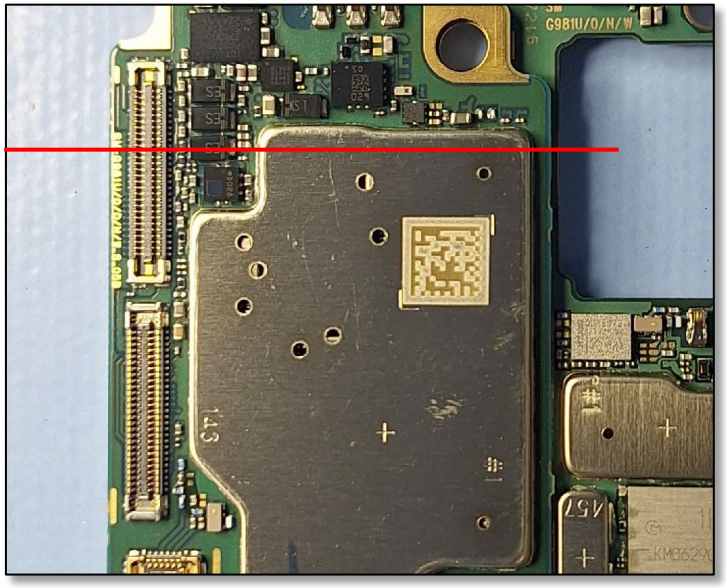
Samsung v. TopWire | IPR2026-00324
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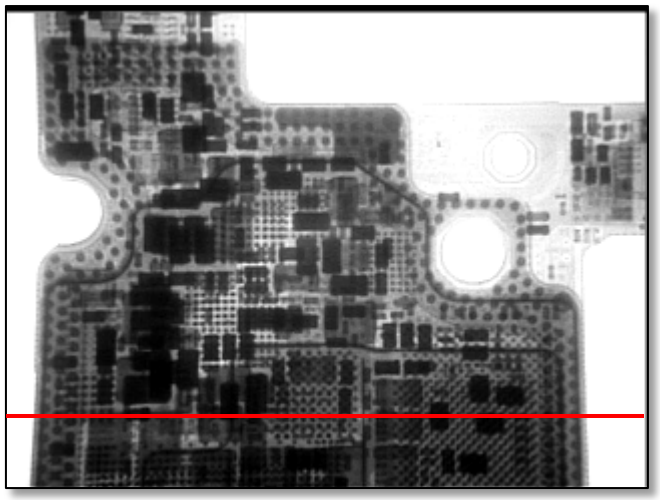
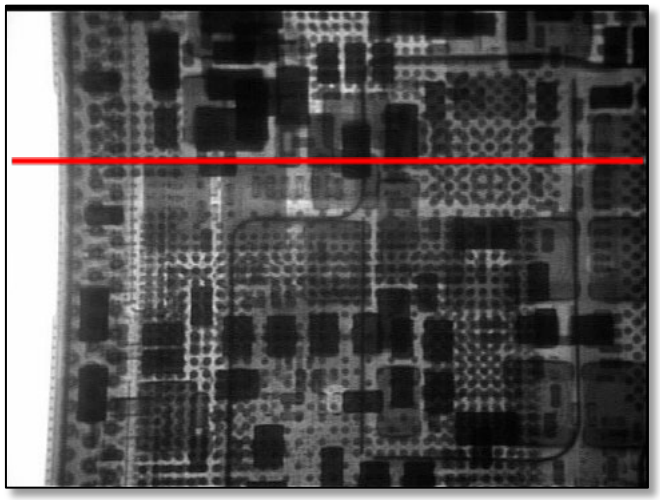
'202 Claim 1	Elements in Accused Smartphones
	 (showing a disassembled Samsung Galaxy S20)  (showing a disassembled Samsung Galaxy S20)

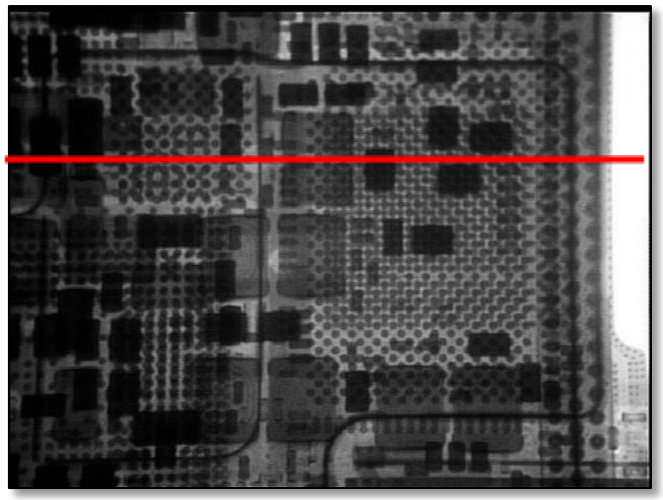
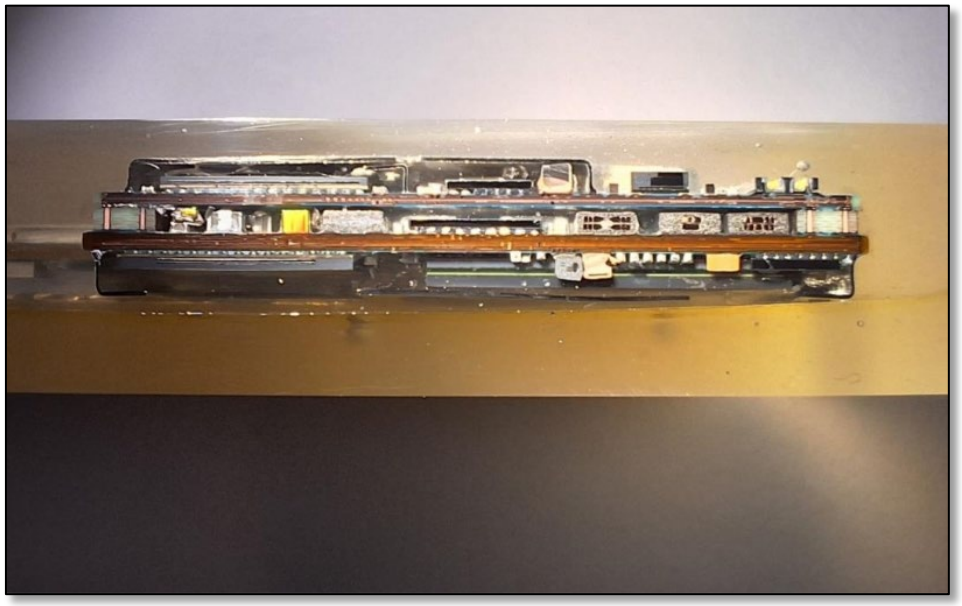
Samsung v. TopWire | IPR2026-00324
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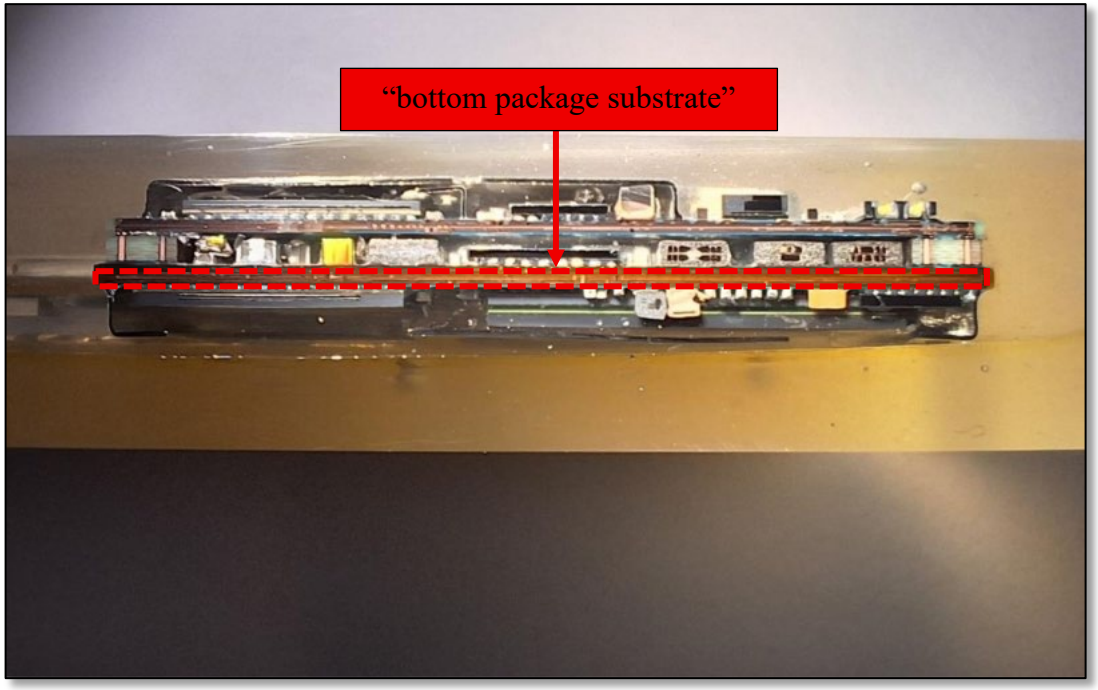
'202 Claim 1	Elements in Accused Smartphones
	For example, the Samsung Galaxy S20 comprises a structure:  (showing a top-side view of a motherboard in a Samsung Galaxy S20)  (showing a bottom-side view of a motherboard in a Samsung Galaxy S20)

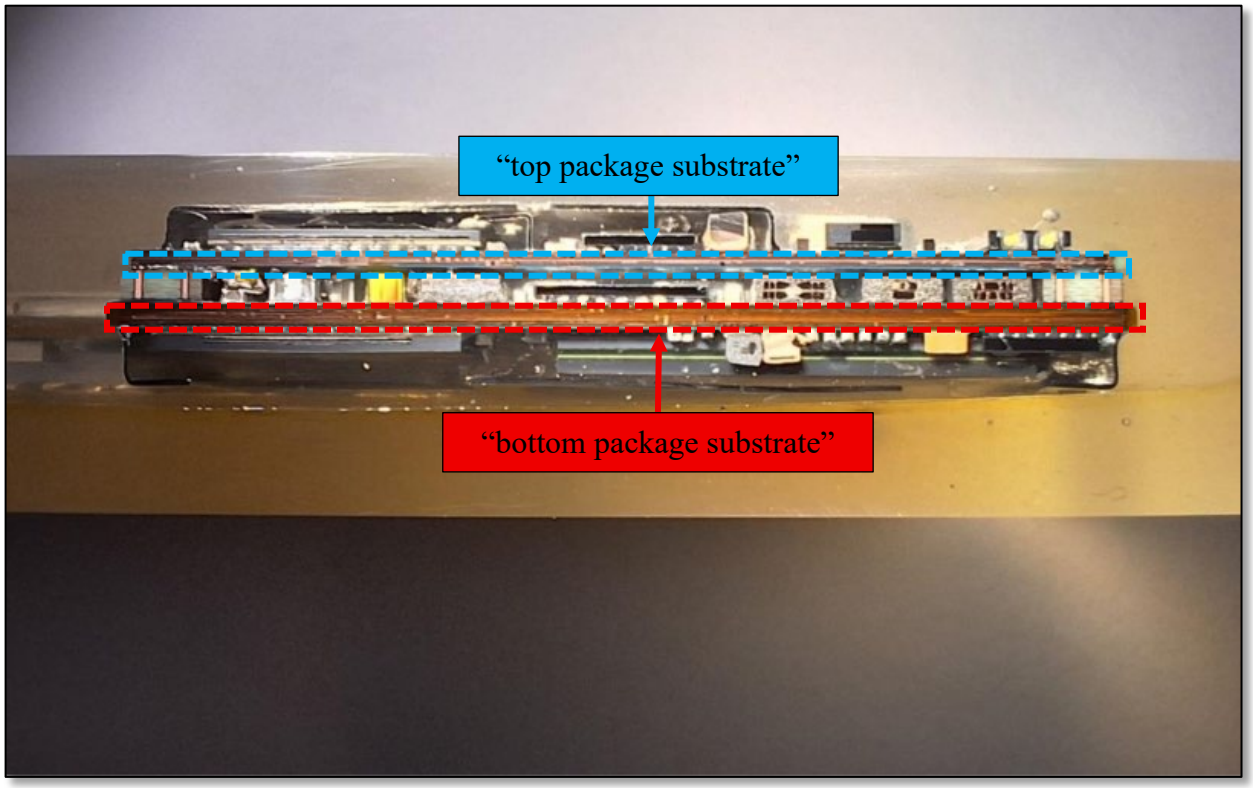
Samsung v. TopWire | IPR2026-00324
CONFIDENTIAL
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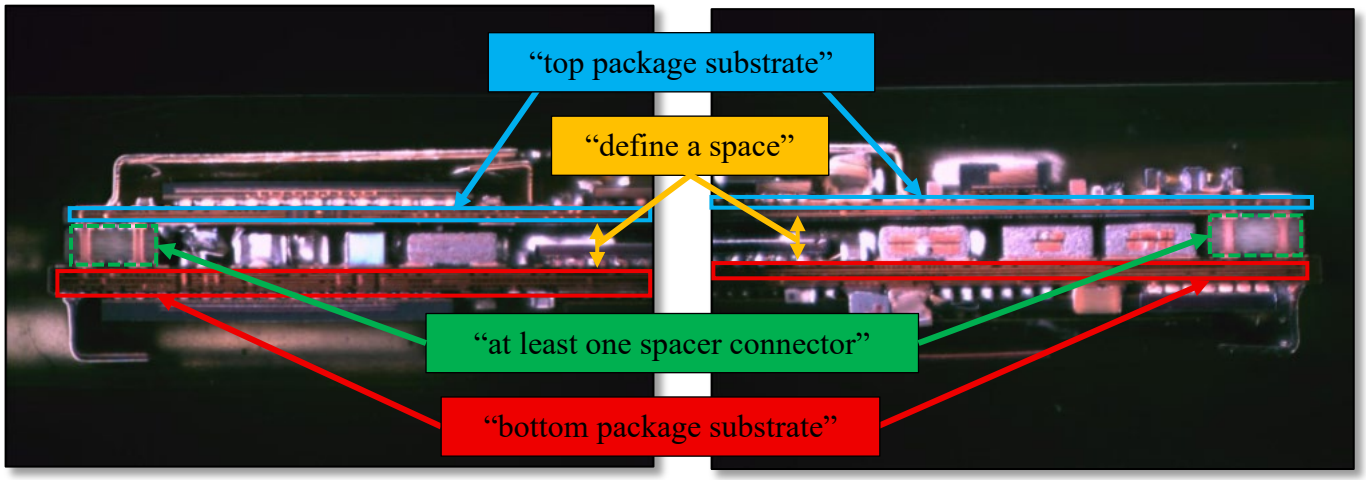
'202 Claim 1	Elements in Accused Smartphones
	 (showing an x-ray image of a motherboard in a Samsung Galaxy S20)  (showing a top-side view of a motherboard with a red cross-section area in a Samsung Galaxy S20)

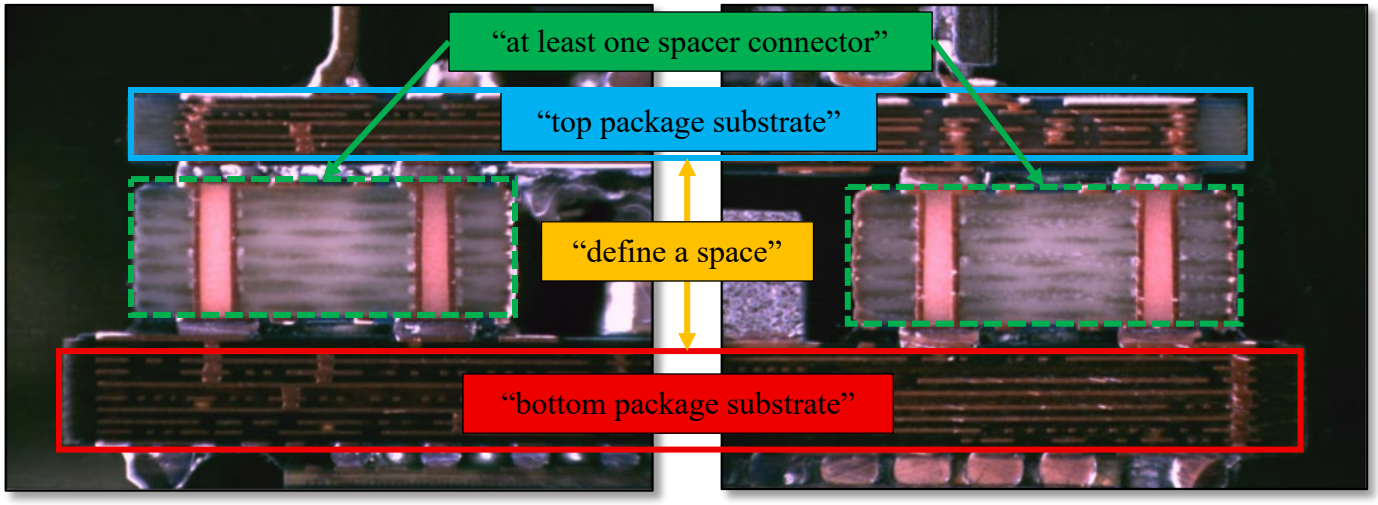
'202 Claim 1	Elements in Accused Smartphones
	 (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S20)  (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S20)

'202 Claim 1	Elements in Accused Smartphones
	 (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S20)  (optical view showing a cross-section view of a motherboard in a Samsung Galaxy S20)

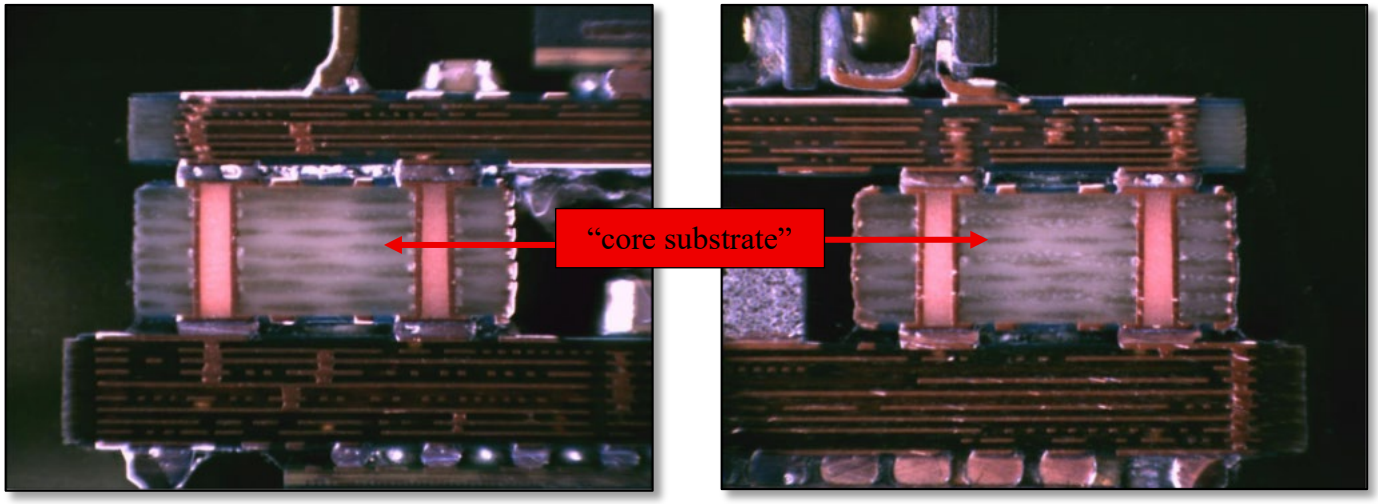
'202 Claim 1	Elements in Accused Smartphones
[1a] a bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate. For example, the Samsung Galaxy S20 comprises a bottom package substrate:  (optical view showing a bottom package substrate)

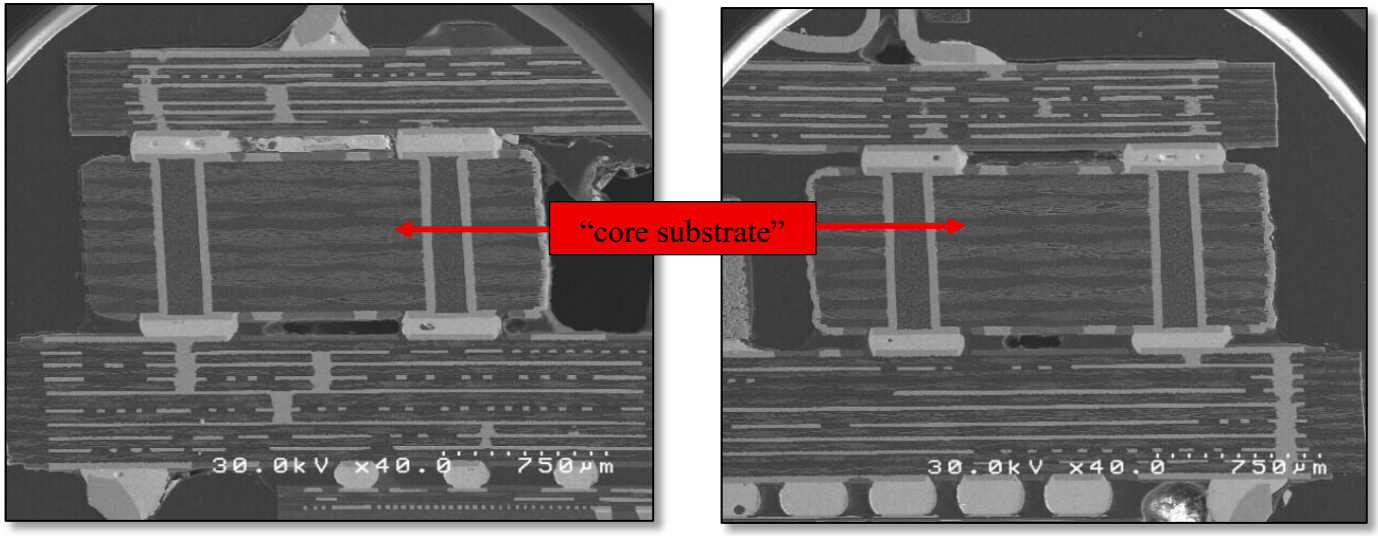
'202 Claim 1	Elements in Accused Smartphones
[1b] a top package substrate stacked on top of the bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top package substrate stacked on top of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate, stacked on top of the bottom package substrate. For example, the Samsung Galaxy S20 comprises a top package substrate stacked on top of the bottom package substrate:  (optical view showing a top package substrate stacked on top of the bottom package substrate)

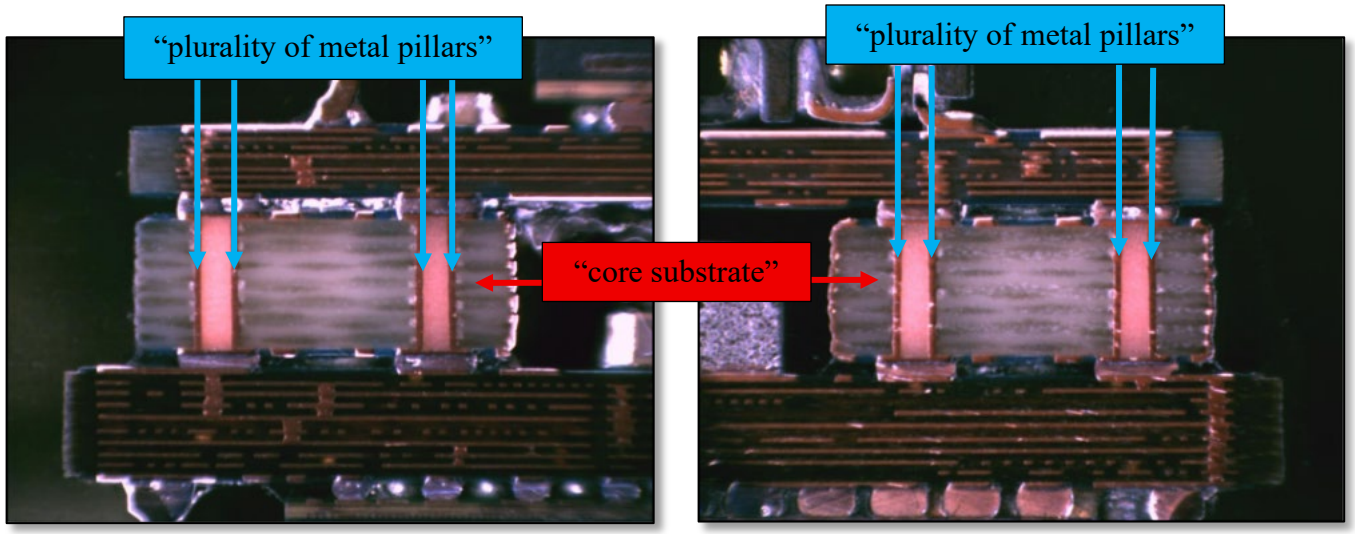
'202 Claim 1	Elements in Accused Smartphones
[1c] at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector, such as a metallic structure or any other suitable spacer connector. The at least one spacer connector is interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. Therefore, the at least one spacer connector separates the top package substrate from the bottom package substrate. For example, the Samsung Galaxy S20 comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate:  (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

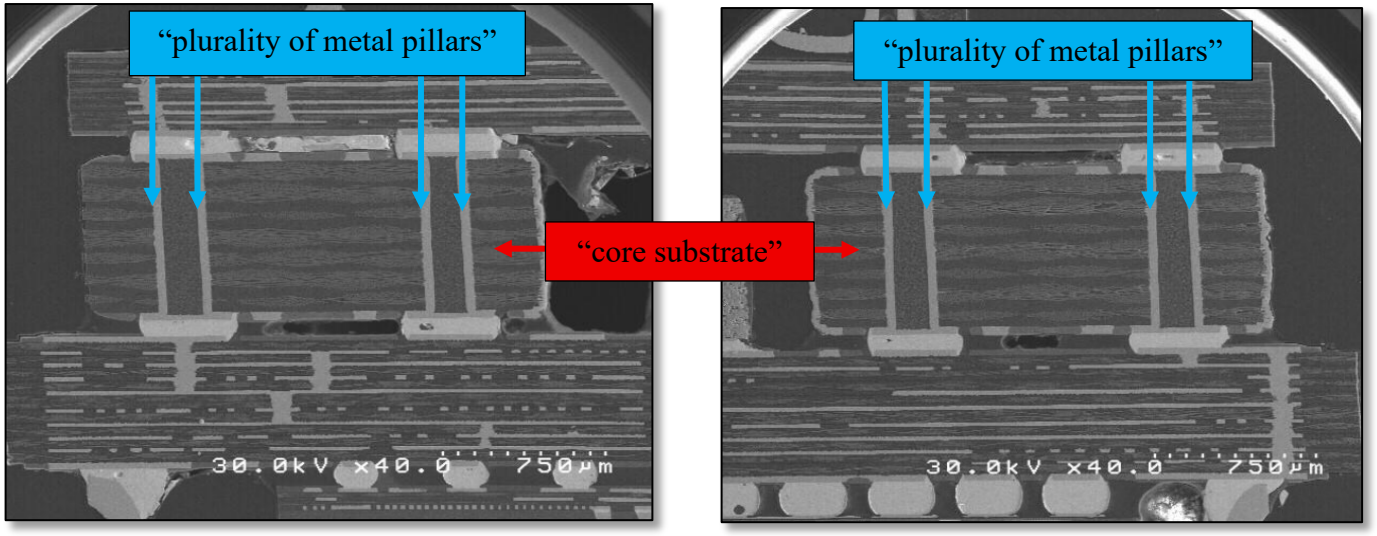
'202 Claim 1	Elements in Accused Smartphones
	 (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

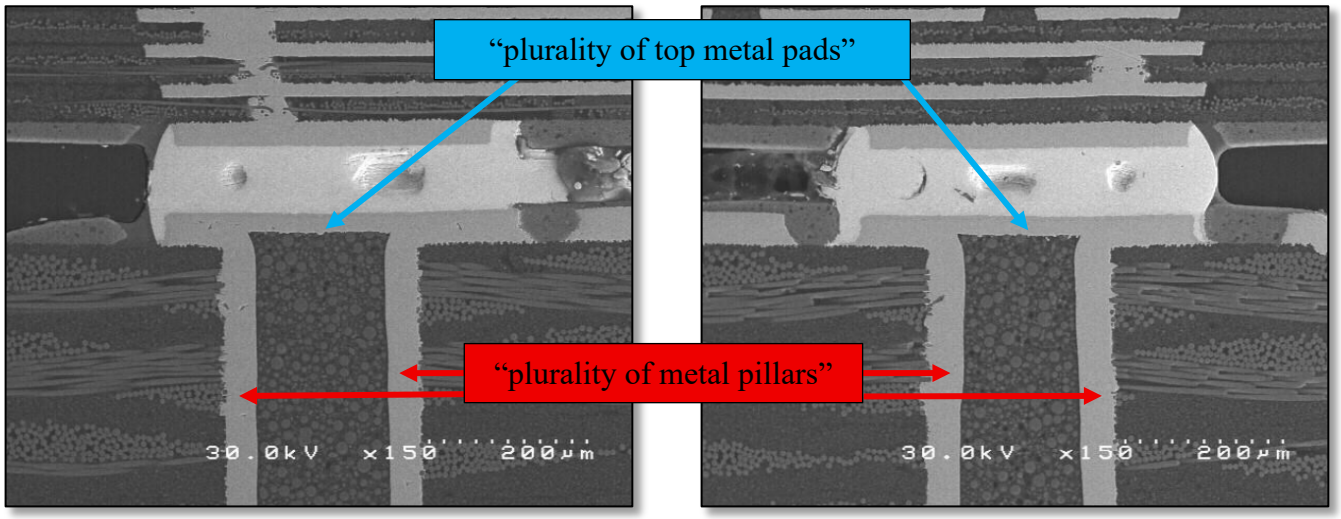
'202 Claim 1	Elements in Accused Smartphones
[1d-pre] wherein the spacer connector comprises:	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. See below.

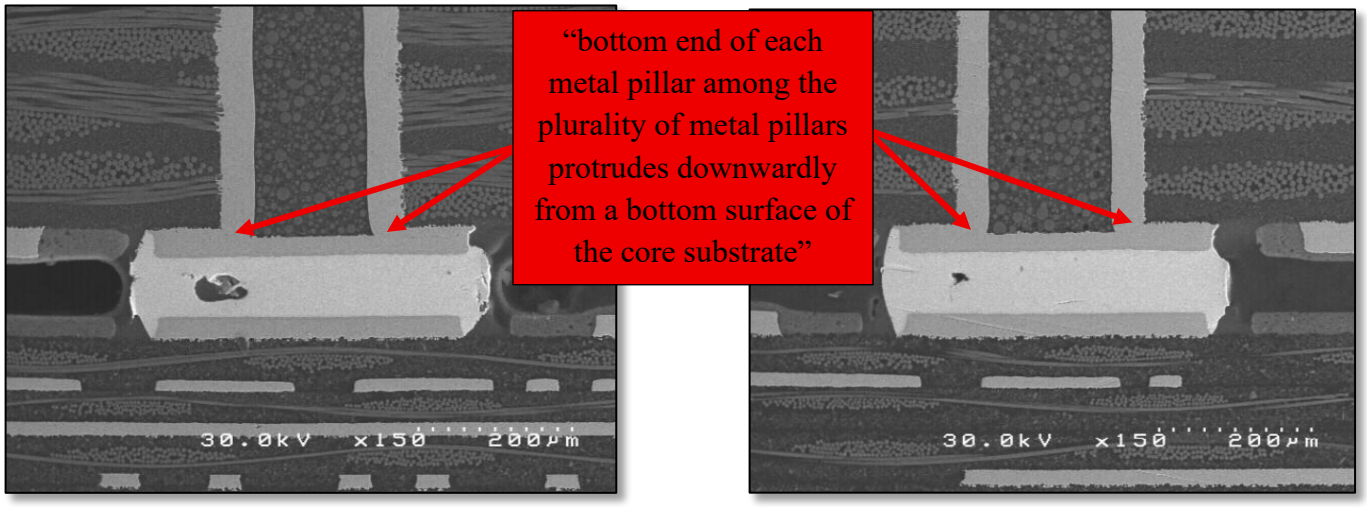
'202 Claim 1	Elements in Accused Smartphones
[1d-1] a core substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a core substrate. E.g., The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a core substrate, such as a silicon substrate or any other suitable core substrate. For example, the at least one spacer connector of the Samsung Galaxy S20 comprises a core substrate:  (optical view showing the core substrate)

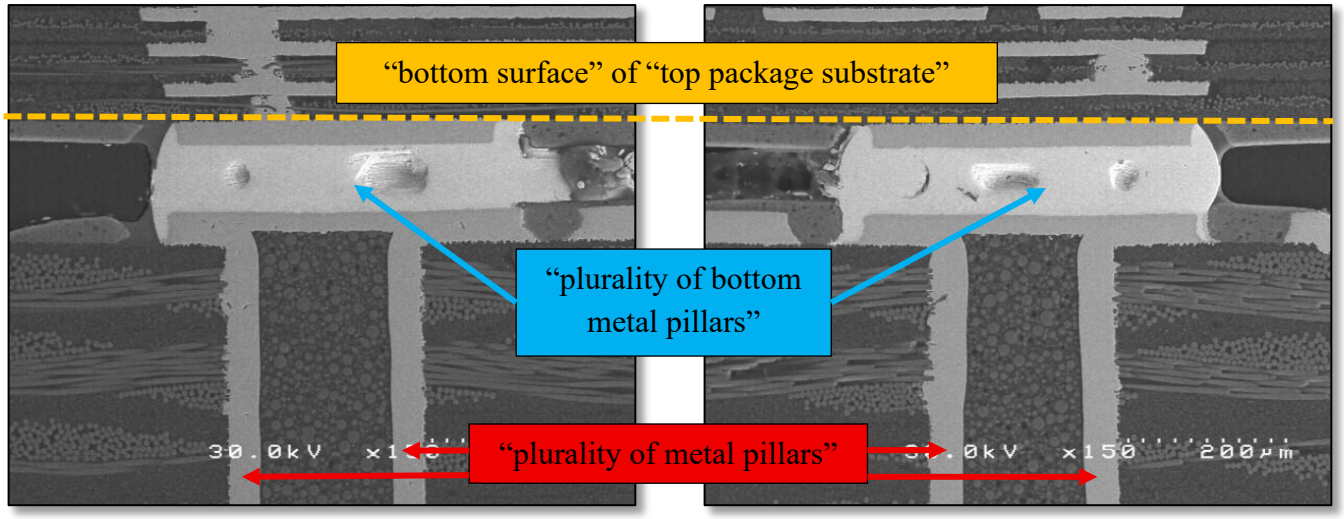
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the core substrate)

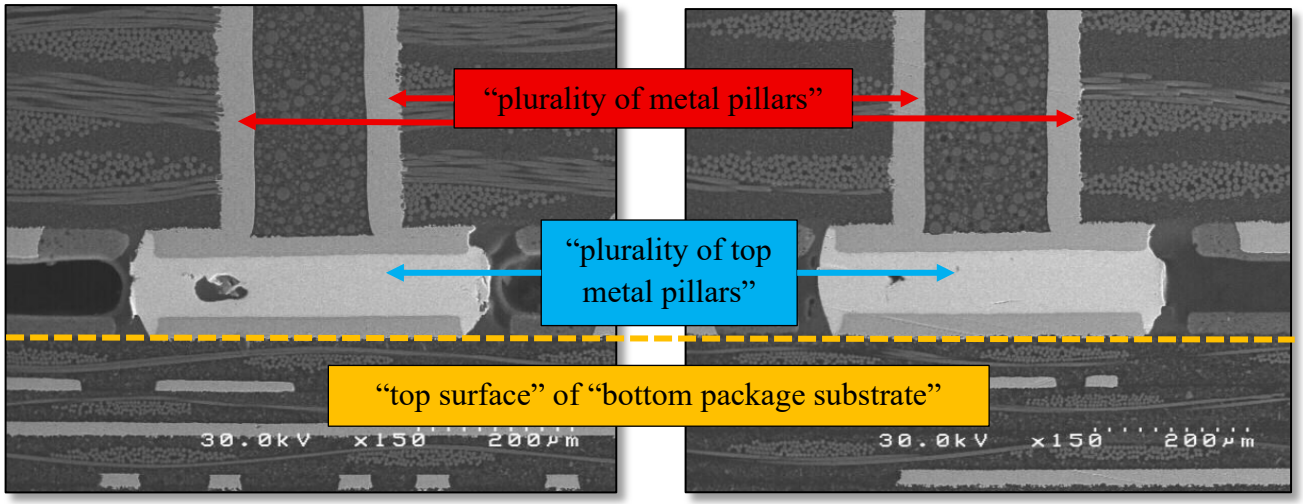
'202 Claim 1	Elements in Accused Smartphones
[1d-2] a plurality of metal pillars, each passing through the core substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of metal pillars, each passing through the core substrate. E.g., The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of metal pillars, such as copper pillars or any other suitable metal pillars. Each of the plurality of metal pillars passes through (e.g., intersects) the core substrate. For example, the at least one spacer connector of the Samsung Galaxy S20 comprises a plurality of metal pillars, each passing through the core substrate:  (optical view showing the plurality of metal pillars, each passing through the core substrate)

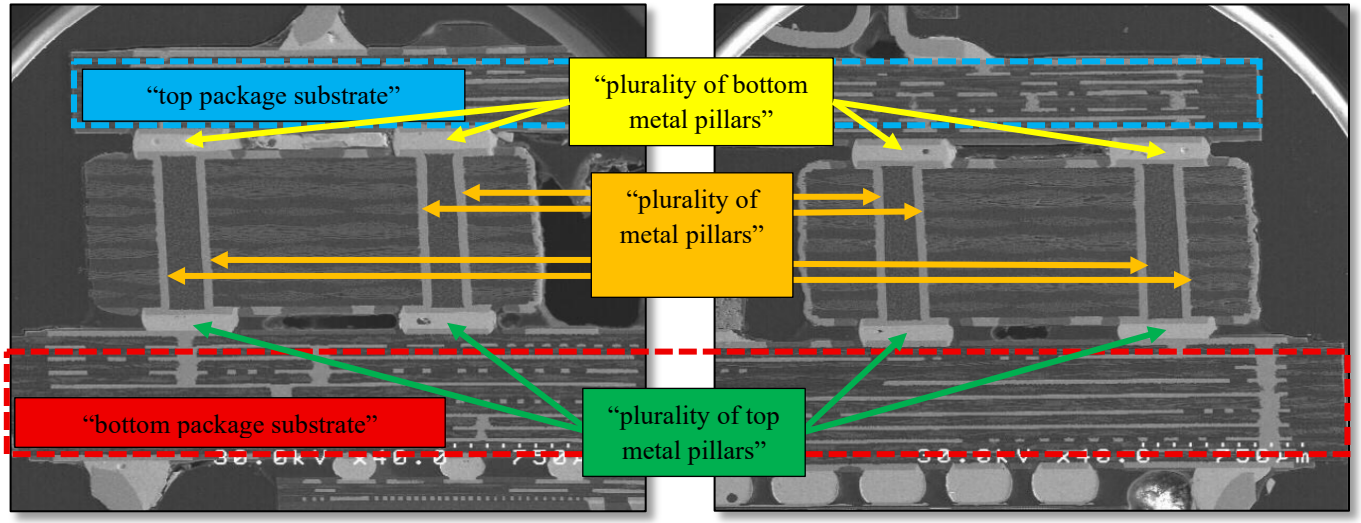
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the plurality of metal pillars, each passing through the core substrate)

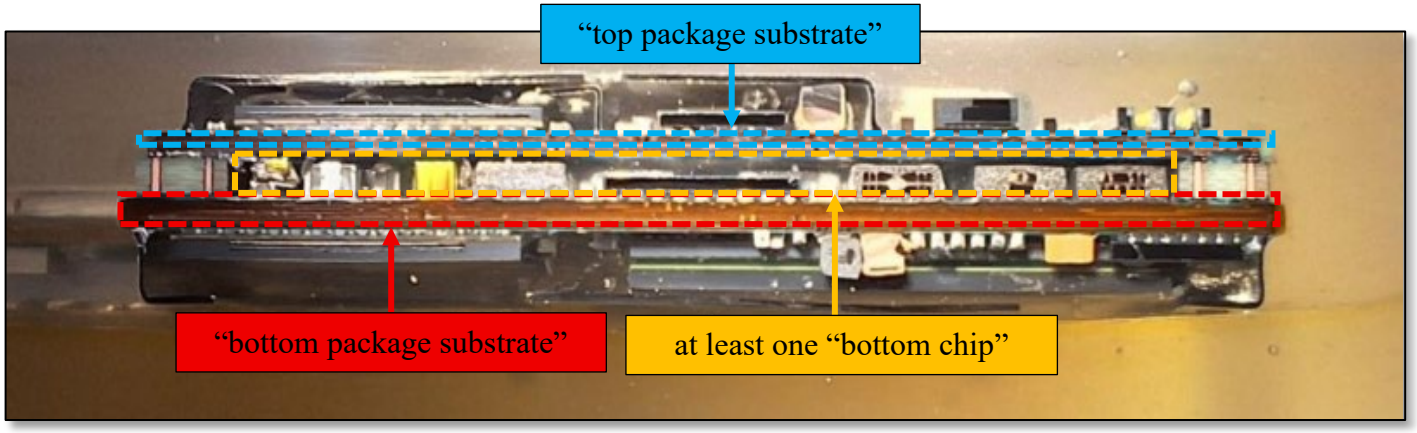
'202 Claim 1	Elements in Accused Smartphones
[1d-3] a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of top metal pads, such as copper metal pads or any other suitable metal pads. Each of the plurality of metal pads are connected to a top end of a corresponding metal pillar among the plurality of metal pillars. For example, the at least one spacer connector of the Samsung Galaxy S20 comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars:  (scanning electron microscope ("SEM") view showing the plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars)

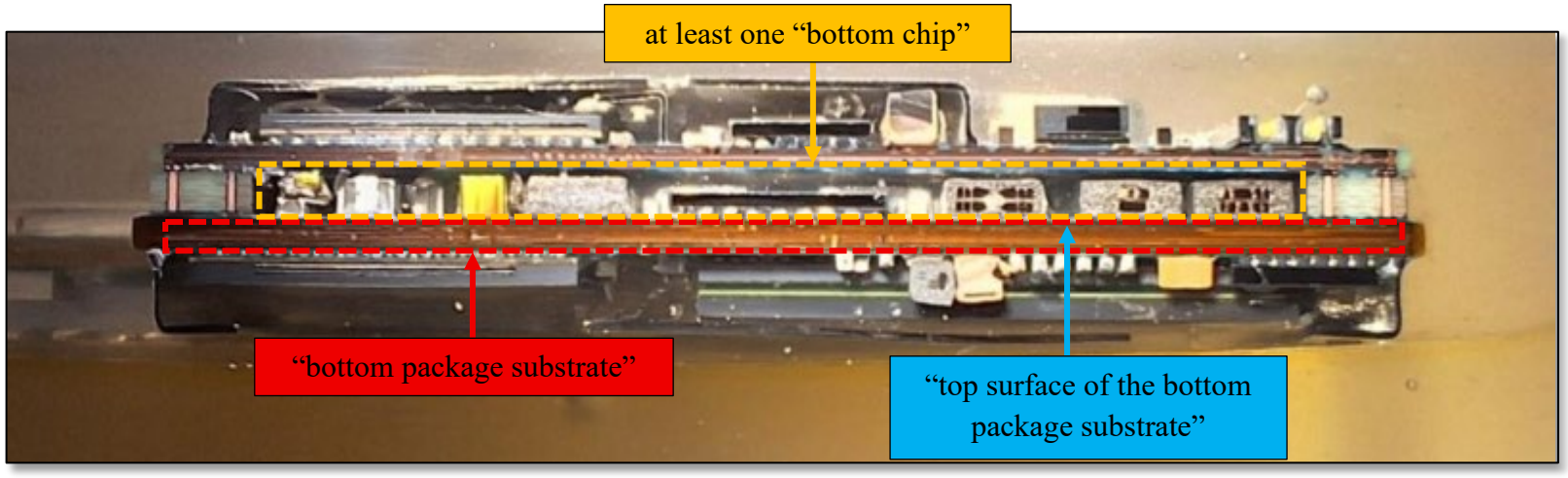
'202 Claim 1	Elements in Accused Smartphones
[1d-4] wherein a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. In the at least one spacer connector of Samsung's Accused Smartphones, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. In the at least one spacer connector, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from (*e.g.*, extends past) a bottom surface of the core substrate. For example, in the at least one spacer connector of the Samsung Galaxy S20, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate:  (scanning electron microscope ("SEM") view showing the bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate)

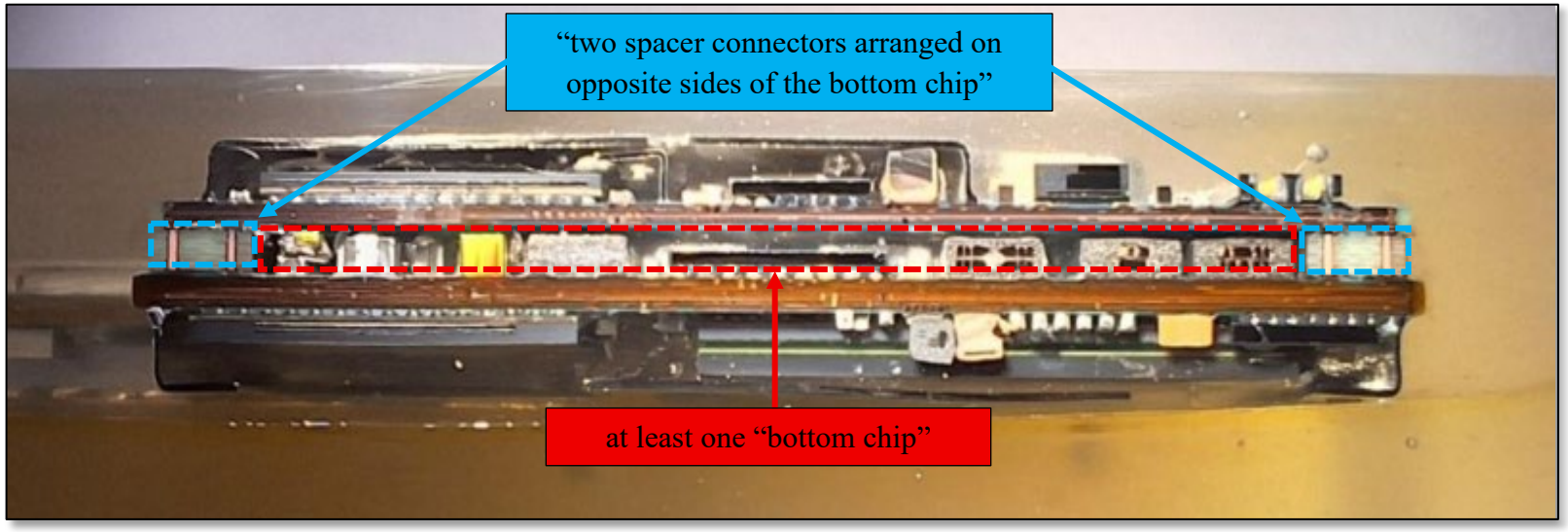
'202 Claim 1	Elements in Accused Smartphones
[1e] the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate has a bottom surface. Additionally, a plurality of bottom metal pillars, such as tin metal pillars or any other suitable bottom metal pillars, are connected to the bottom surface of the top package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the top package substrate of the Samsung Galaxy S20 has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

'202 Claim 1	Elements in Accused Smartphones
[1f] the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom package substrate of Samsung's Accused Smartphones has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom package substrate has a top surface. Additionally, a plurality of top metal pillars, such as tin metal pillars or any other suitable top metal pillars, are connected to the top surface of the bottom package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the bottom package substrate of the Samsung Galaxy S20 has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

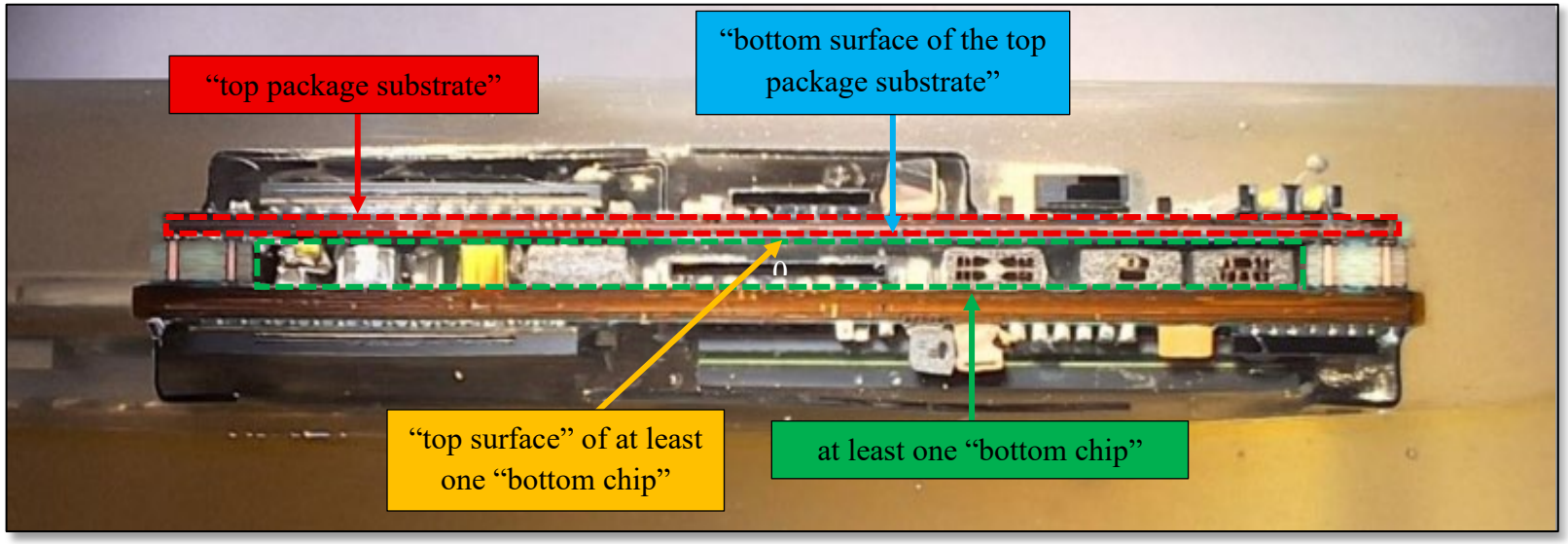
'202 Claim 1	Elements in Accused Smartphones
[1g] the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate is electrically coupled to the bottom package substrate. Additionally, current flows between the top package substrate and the bottom package substrate via the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate, all of which are electrically coupled together. For example, the top package substrate of the Samsung Galaxy S20 is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate:  (scanning electron microscope ("SEM") view showing the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1h] a bottom chip arranged in the space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, arranged between the space between the bottom package substrate and the top package substrate formed by the at least one spacer connector. For example, the Samsung Galaxy S20 comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate:  (optical view showing the bottom chip arranged in the space between the bottom package substrate and the top package substrate)

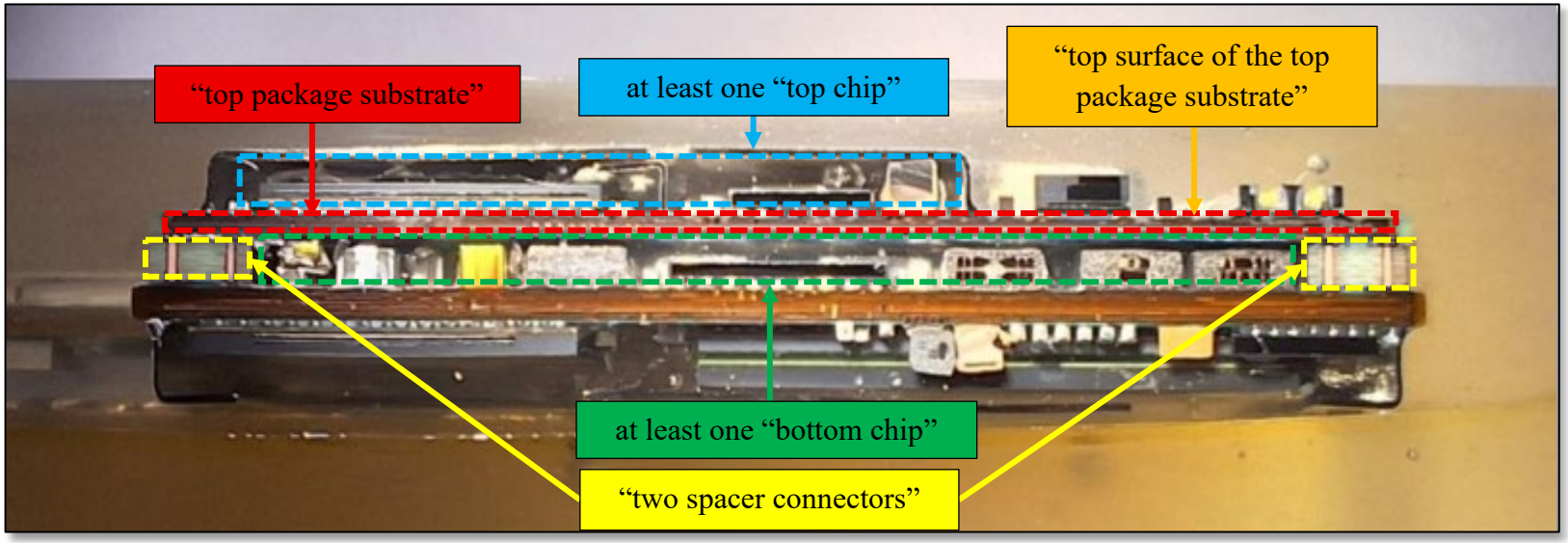
'202 Claim 1	Elements in Accused Smartphones
[1i] the bottom chip is mounted to the top surface of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged mounted to the top surface of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, mounted to the top surface of the bottom package substrate. For example, the bottom chip of the Samsung Galaxy S20 is mounted to the top surface of the bottom package substrate:  (optical view showing the bottom chip mounted to the top surface of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1j] the at least one spacer connector comprises two spacer connectors arranged on opposite sides of the bottom chip.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises two spacer connectors arranged on opposite sides of the bottom chip. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the at least one spacer connector includes two spacer connectors arranged on opposite sides of the bottom chip. For example, the at least one spacer connector of the Samsung Galaxy S20 comprises two spacer connectors arranged on opposite sides of the bottom chip:  (optical view showing the at least one spacer connector comprising two spacer connectors arranged on opposite sides of the bottom chip)

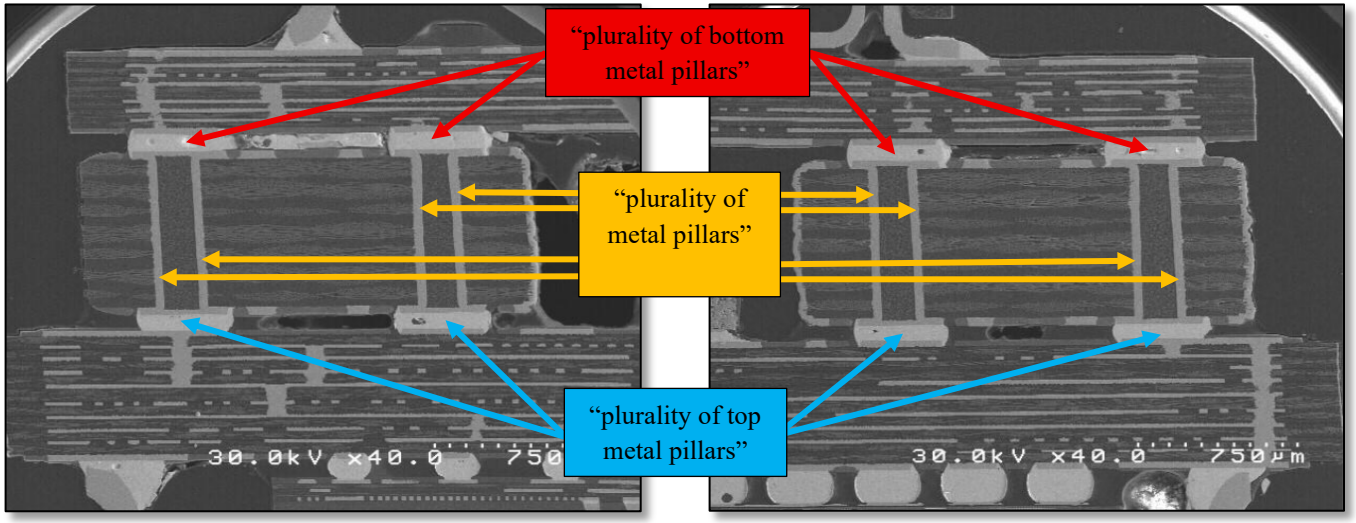
"2. The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate."

'202 Claim 2	Elements in Accused Smartphones
[2] The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom chip of Samsung's Accused Smartphones has a top surface that is spaced downwardly from the bottom surface of the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom chip has a top surface that is spaced downwardly from the bottom surface of the top package substrate. For example, in the Samsung Galaxy S20, a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate:  (optical view showing the top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate)

"3. The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors."

'202 Claim 3	Elements in Accused Smartphones
[3] The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors.	TopWire incorporates the disclosures set forth for Claims 1 and 2 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top chip, such as a memory chip or any other suitable top chip, mounted to the top surface of the top package substrate. The top package substrate is stacked on top of the bottom package substrate such that the top chip overlaps the bottom chip and each of the two spacer connectors. For example, the Samsung Galaxy S20 comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors:  (optical view showing the top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors)

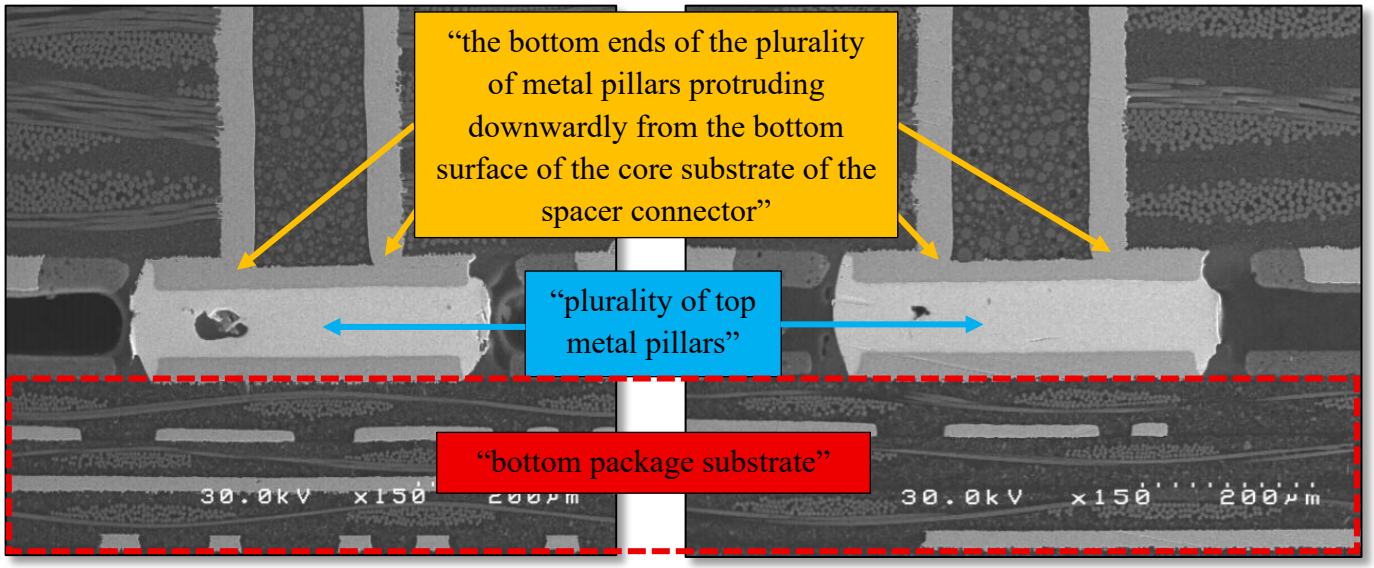
"4. The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate."

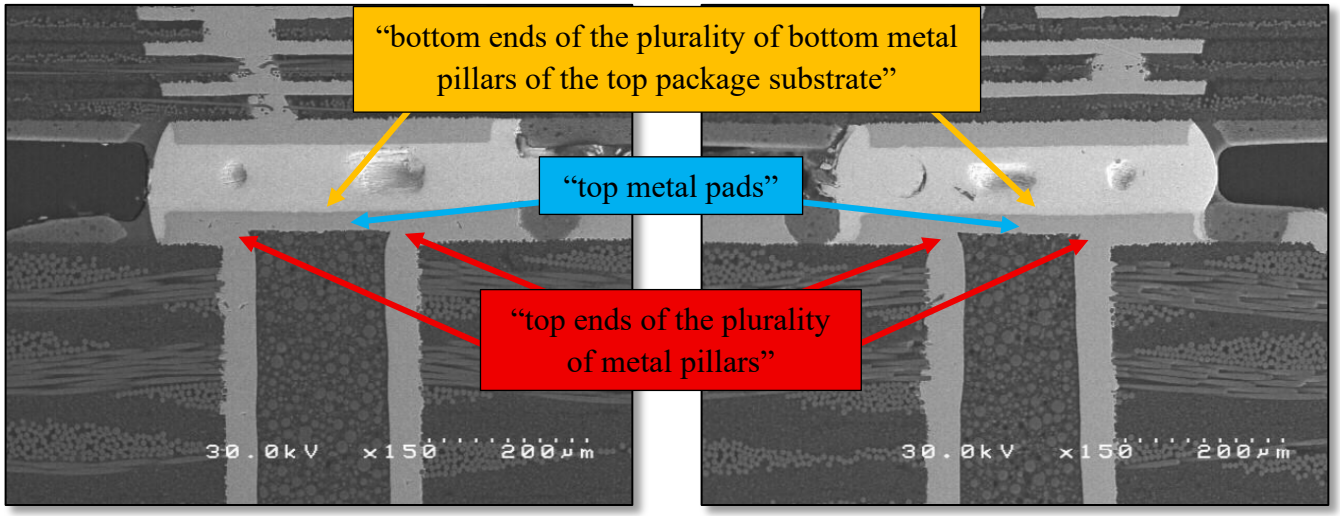
'202 Claim 4	Elements in Accused Smartphones
[4] The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. Each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned (*e.g.*, vertically aligned) with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. For example, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy S20 is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate:  (scanning electron microscope ("SEM") view showing each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate)

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
[6a] The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in Samsung's Accused Smartphones are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector. The plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. For example, the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in the Samsung Galaxy S20 are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate:

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate)

'202 Claim 6	Elements in Accused Smartphones
[**6b**] bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector.	TopWire incorporates the disclosures set forth for Claims 1, 4, and 6 as if set forth herein. The bottom ends of the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the bottom ends of the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy S20 are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:  (scanning electron microscope ("SEM") view showing bottom ends of the plurality of bottom metal pillars of the top package substrate that are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

'202 Claim 9	Elements in Accused Smartphones
[9] The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The spacer connector in Samsung's Accused Smartphones further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a spacer connector. The spacer connector further includes a plurality of bottom metal pads, such as copper metal pads or any other suitable bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars. The bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the spacer connector in the Samsung Galaxy S20 further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

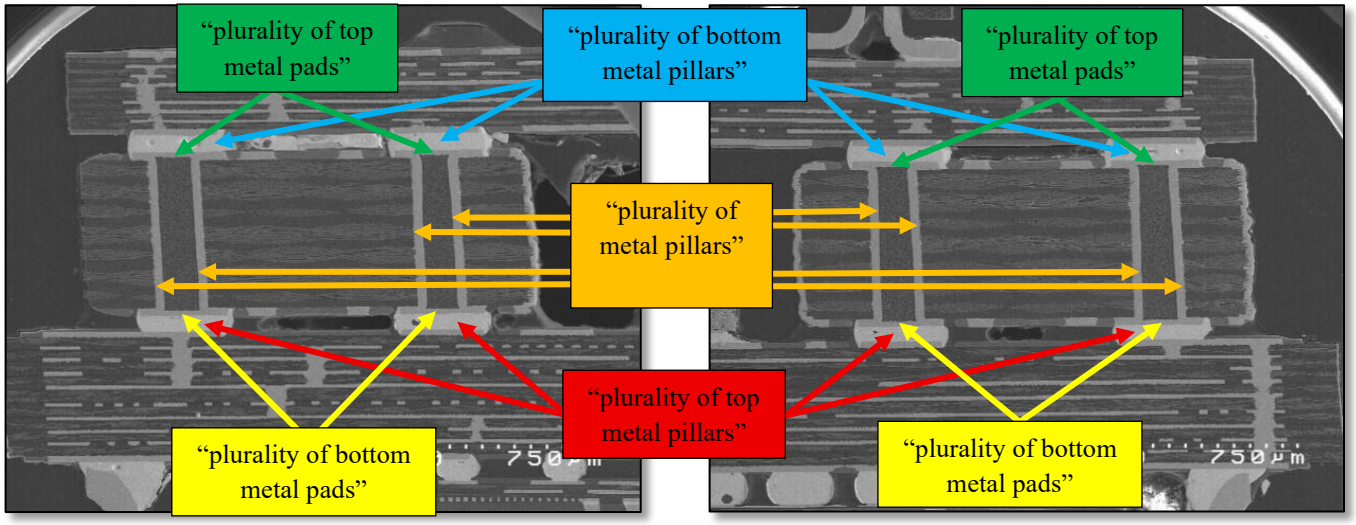
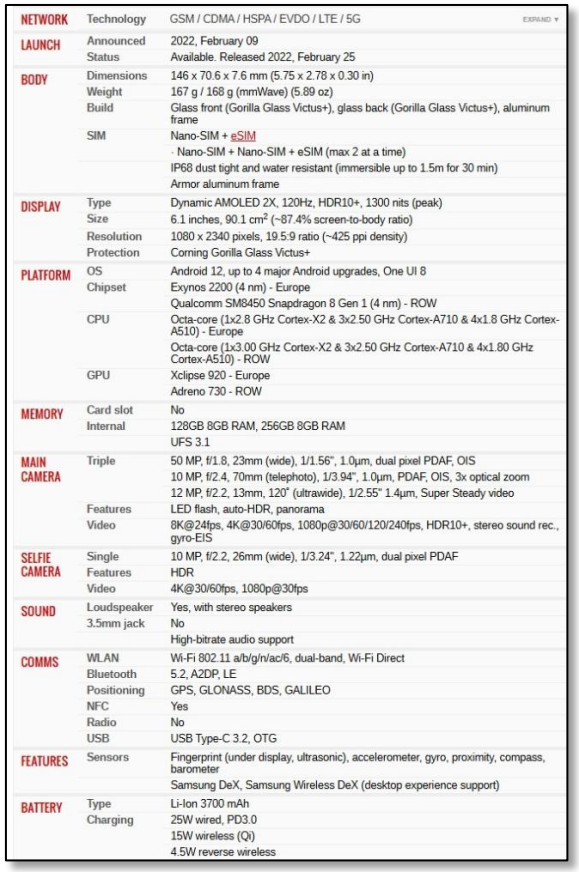
'202 Claim 9	Elements in Accused Smartphones
the corresponding top metal pads of the spacer connector.	 (scanning electron microscope ("SEM") view showing the spacer connector further comprising a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars being connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate being connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

EXHIBIT C

Exhibit C – U.S. Patent No. 9,859,202 (Accused Smartphones)
"1. A structure, comprising:"

'202 Claim 1	Elements in Accused Smartphones
[1-pre] A structure, comprising:	To the extent the preamble is limiting, Samsung's Accused Smartphones[1] comprise a structure. *E.g.*, Samsung's Accused Smartphones incorporate structures, such as motherboards (sometimes also referred to as "logic boards"). The motherboards in Samsung's Accused Smartphones contain integrated circuits (sometimes also referred to as "chips"). The motherboard performs many core functions of Samsung's Accused Smartphones.  (showing the specification of a Samsung Galaxy S22). *See* GSMARENA, *Specifications*, available at https://www.gsmarena.com/samsung_galaxy_s22__5g_11253.php (last visited February 8, 2026).

NETWORK	Technology	GSM / CDMA / HSPA / EVDO / LTE / 5G
LAUNCH	Announced	2022, February 09
	Status	Available. Released 2022, February 25
BODY	Dimensions	146 x 70.6 x 7.6 mm (5.75 x 2.78 x 0.30 in)
	Weight	167 g / 168 g (mmWave) (5.89 oz)
	Build	Glass front (Gorilla Glass Victus+), glass back (Gorilla Glass Victus+), aluminum frame
	SIM	Nano-SIM + eSIM · Nano-SIM + Nano-SIM + eSIM (max 2 at a time)
		IP68 dust tight and water resistant (immersible up to 1.5m for 30 min)
		Armor aluminum frame
DISPLAY	Type	Dynamic AMOLED 2X, 120Hz, HDR10+, 1300 nits (peak)
	Size	6.1 inches, 90.1 cm² (~87.4% screen-to-body ratio)
	Resolution	1080 x 2340 pixels, 19.5:9 ratio (~425 ppi density)
	Protection	Corning Gorilla Glass Victus+
PLATFORM	OS	Android 12, up to 4 major Android upgrades, One UI 8
	Chipset	Exynos 2200 (4 nm) - Europe
		Qualcomm SM8450 Snapdragon 8 Gen 1 (4 nm) - ROW
	CPU	Octa-core (1x2.8 GHz Cortex-X2 & 3x2.50 GHz Cortex-A710 & 4x1.8 GHz Cortex-A510) - Europe
		Octa-core (1x3.00 GHz Cortex-X2 & 3x2.50 GHz Cortex-A710 & 4x1.80 GHz Cortex-A510) - ROW
	GPU	Xclipse 920 - Europe
		Adreno 730 - ROW
MEMORY	Card slot	No
	Internal	128GB 8GB RAM, 256GB 8GB RAM
		UFS 3.1
MAIN CAMERA	Triple	50 MP, f/1.8, 23mm (wide), 1/1.56", 1.0µm, dual pixel PDAF, OIS
		10 MP, f/2.4, 70mm (telephoto), 1/3.94", 1.0µm, PDAF, OIS, 3x optical zoom
		12 MP, f/2.2, 13mm, 120° (ultrawide), 1/2.55" 1.4µm, Super Steady video
	Features	LED flash, auto-HDR, panorama
	Video	8K@24fps, 4K@30/60fps, 1080p@30/60/120/240fps, HDR10+, stereo sound rec., gyro-EIS
SELFIE CAMERA	Single	10 MP, f/2.2, 26mm (wide), 1/3.24", 1.22µm, dual pixel PDAF
	Features	HDR
	Video	4K@30/60fps, 1080p@30fps
SOUND	Loudspeaker	Yes, with stereo speakers
	3.5mm jack	No
		High-bitrate audio support
COMMS	WLAN	Wi-Fi 802.11 a/b/g/n/ac/6, dual-band, Wi-Fi Direct
	Bluetooth	5.2, A2DP, LE
	Positioning	GPS, GLONASS, BDS, GALILEO
	NFC	Yes
	Radio	No
	USB	USB Type-C 3.2, OTG
FEATURES	Sensors	Fingerprint (under display, ultrasonic), accelerometer, gyro, proximity, compass, barometer
		Samsung DeX, Samsung Wireless DeX (desktop experience support)
BATTERY	Type	Li-Ion 3700 mAh
	Charging	25W wired, PD3.0
		15W wireless (Qi)
		4.5W reverse wireless

[1] The term Accused Smartphones is defined as those smartphone products accused of infringement in the cover pleading of these contentions, and those further identified during discovery.

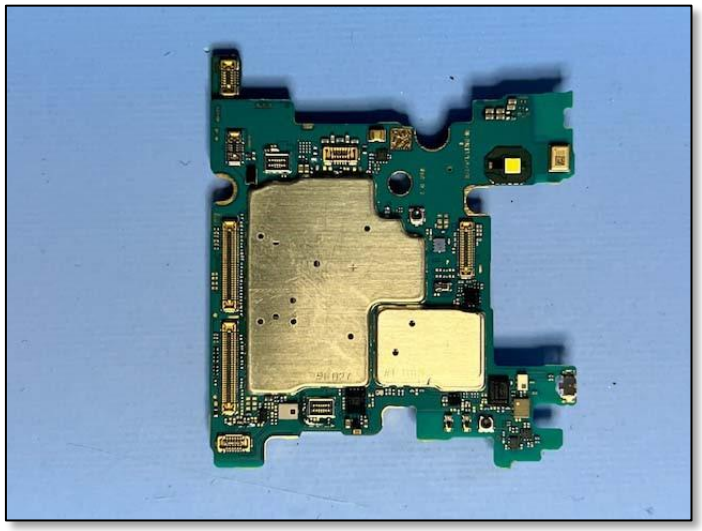
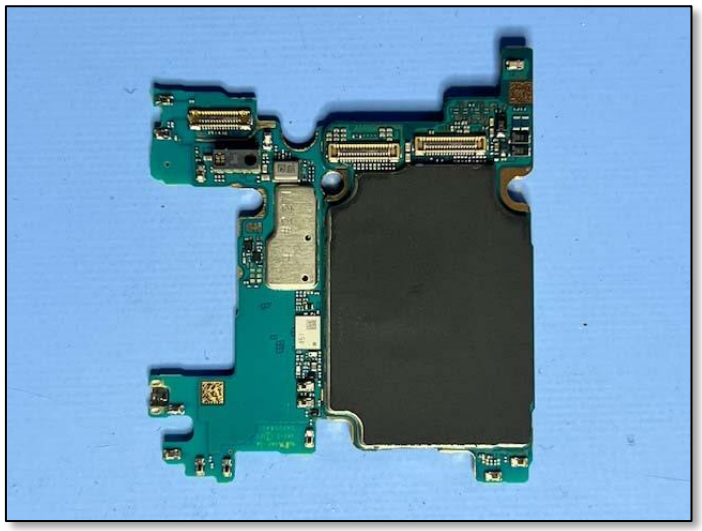
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CONFIDENTIAL
Ex. 2004

'202 Claim 1	Elements in Accused Smartphones
	For example, disassembling the Apple iPhone 12 shows that it includes a motherboard structure:  (showing a top-side view of a Samsung Galaxy S22)  (showing a bottom-side view of a Samsung Galaxy S22)

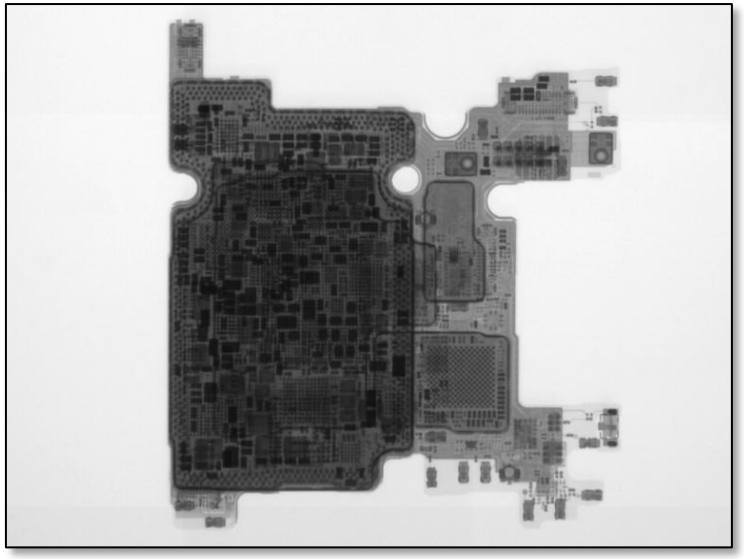
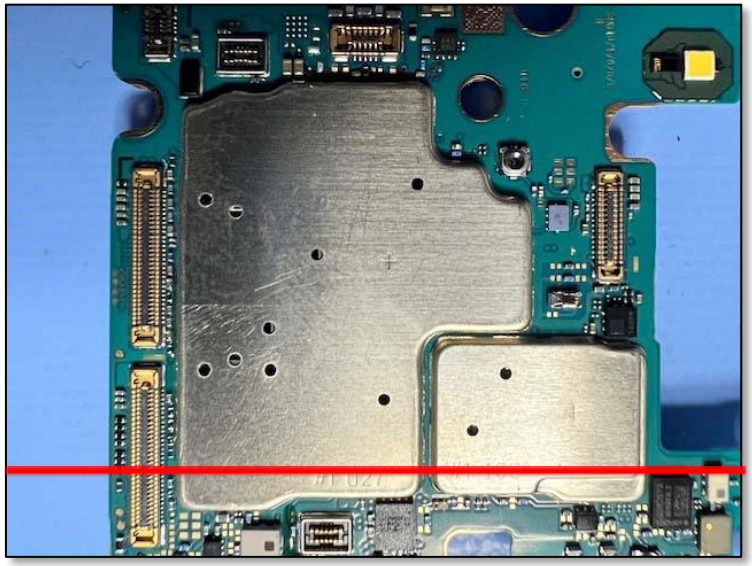
Samsung v. TopWire | IPR2026-00324
CONFIDENTIAL
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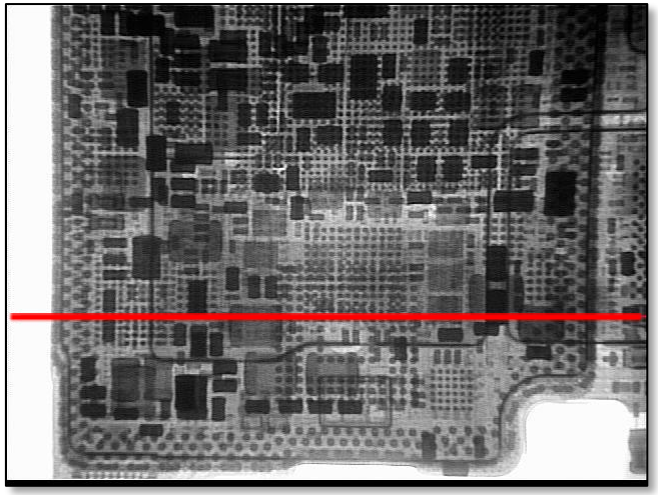
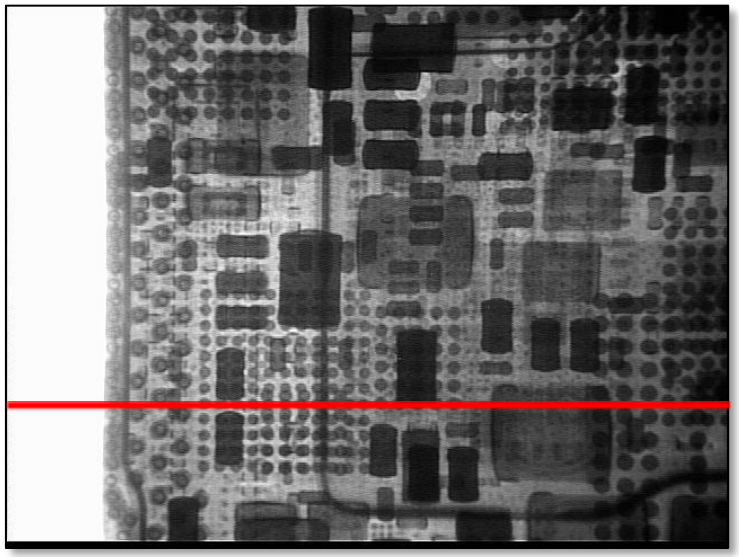
'202 Claim 1	Elements in Accused Smartphones
	 (showing a disassembled Samsung Galaxy S22)  (showing a disassembled Samsung Galaxy S22)

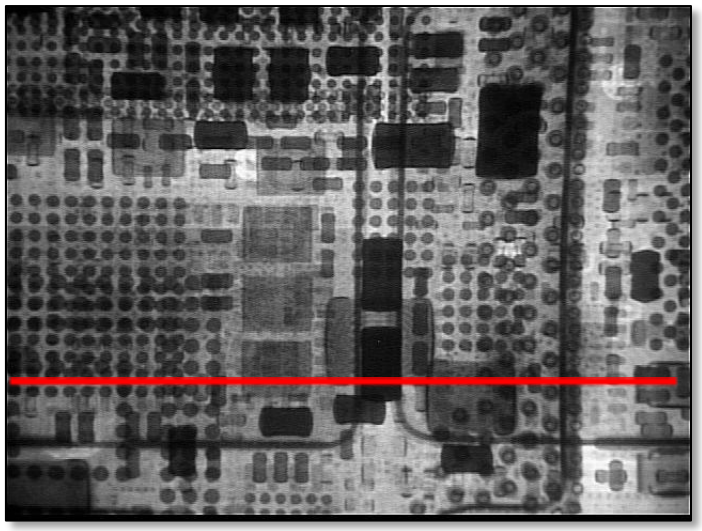
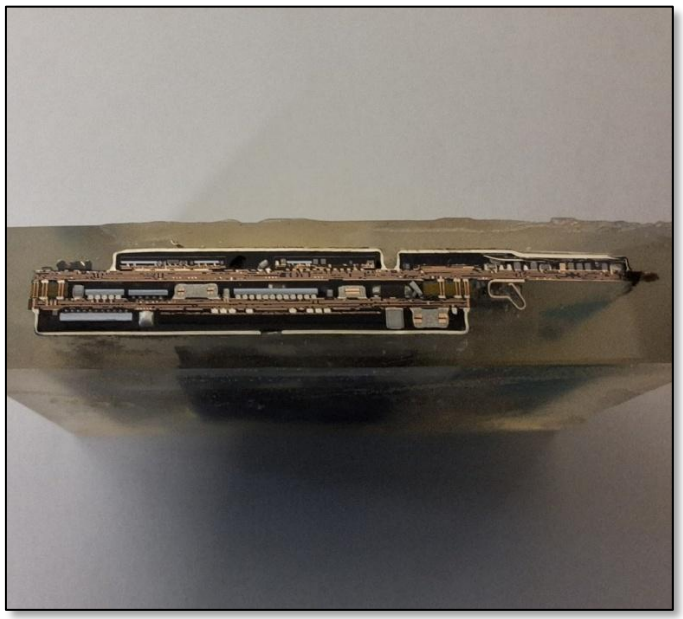
Samsung v. TopWire | IPR2026-00324
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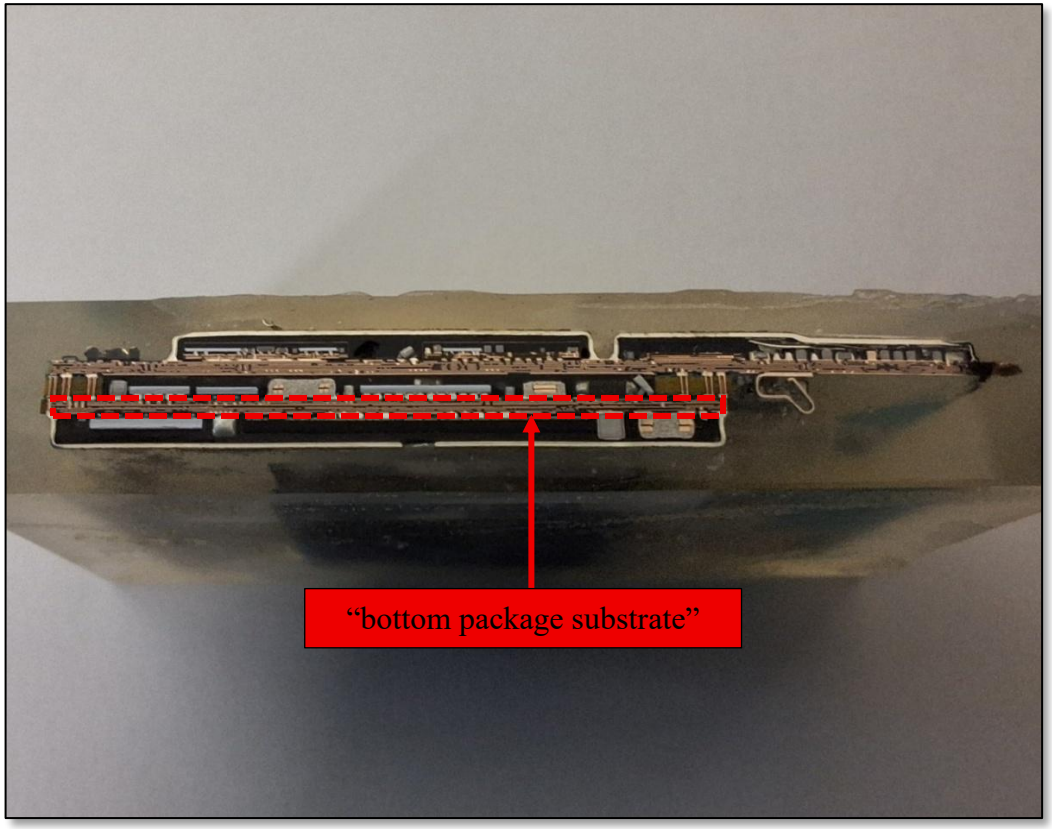
'202 Claim 1	Elements in Accused Smartphones
	For example, the Samsung Galaxy S22 comprises a structure:  (showing a top-side view of a motherboard in a Samsung Galaxy S22)  (showing a bottom-side view of a motherboard in a Samsung Galaxy S22)

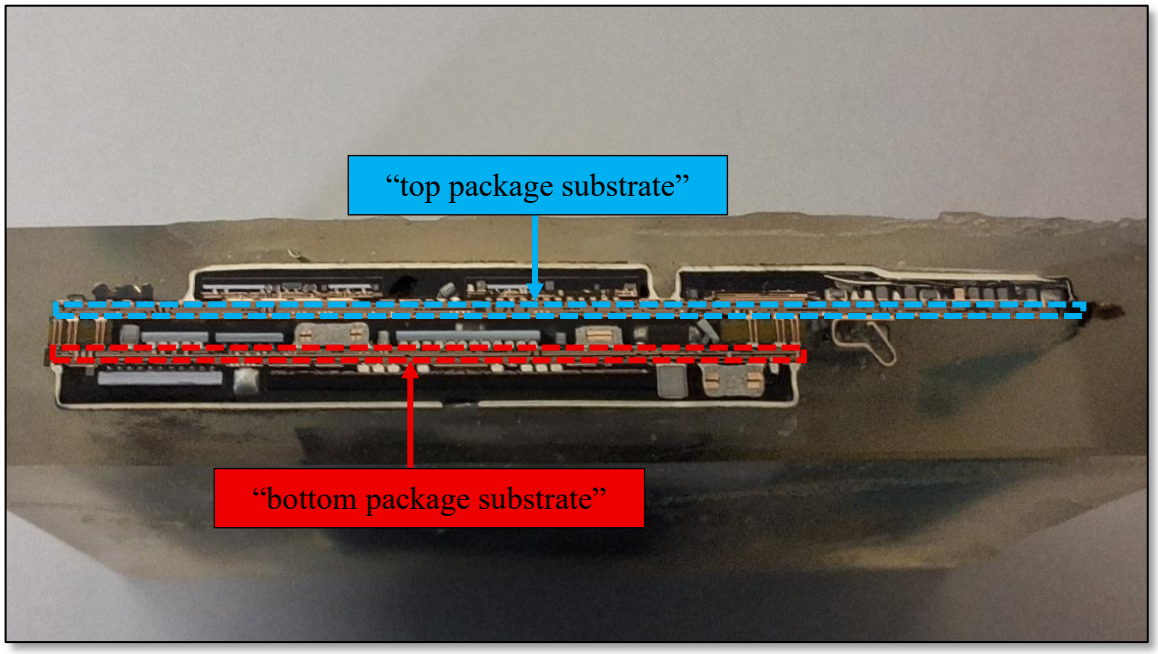
Samsung v. TopWire | IPR2026-00324
CONFIDENTIAL
Ex. 2004

'202 Claim 1	Elements in Accused Smartphones
	 (showing an x-ray image of a motherboard in a Samsung Galaxy S22)  (showing a top-side view of a motherboard with a red cross-section area in a Samsung Galaxy S22)

'202 Claim 1	Elements in Accused Smartphones
	 (showing an x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S22)  (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S22)

'202 Claim 1	Elements in Accused Smartphones
	 (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S22)  (optical view showing a cross-section view of a motherboard in a Samsung Galaxy S22)

'202 Claim 1	Elements in Accused Smartphones
[1a] a bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate. For example, the Samsung Galaxy S22 comprises a bottom package substrate:  (optical view showing a bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1b] a top package substrate stacked on top of the bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top package substrate stacked on top of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate, stacked on top of the bottom package substrate. For example, the Samsung Galaxy S22 comprises a top package substrate stacked on top of the bottom package substrate:  (optical view showing a top package substrate stacked on top of the bottom package substrate)

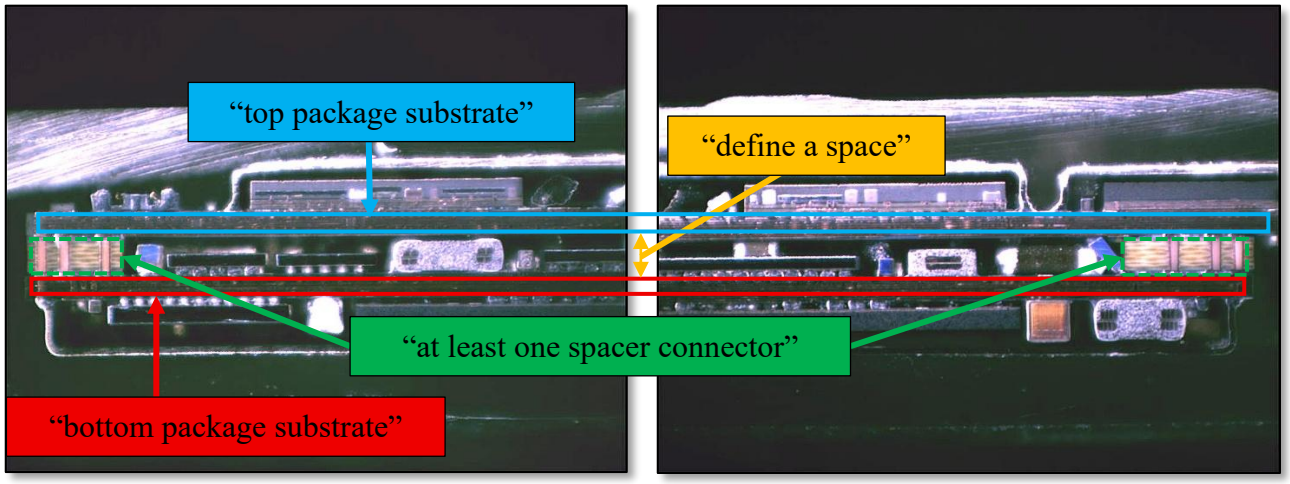
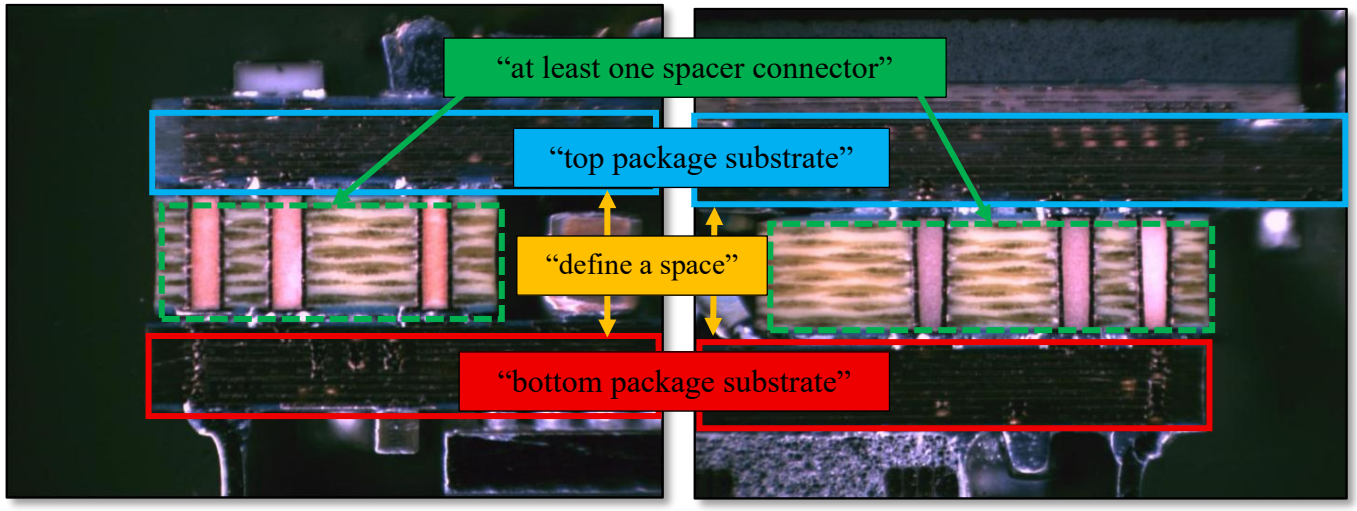
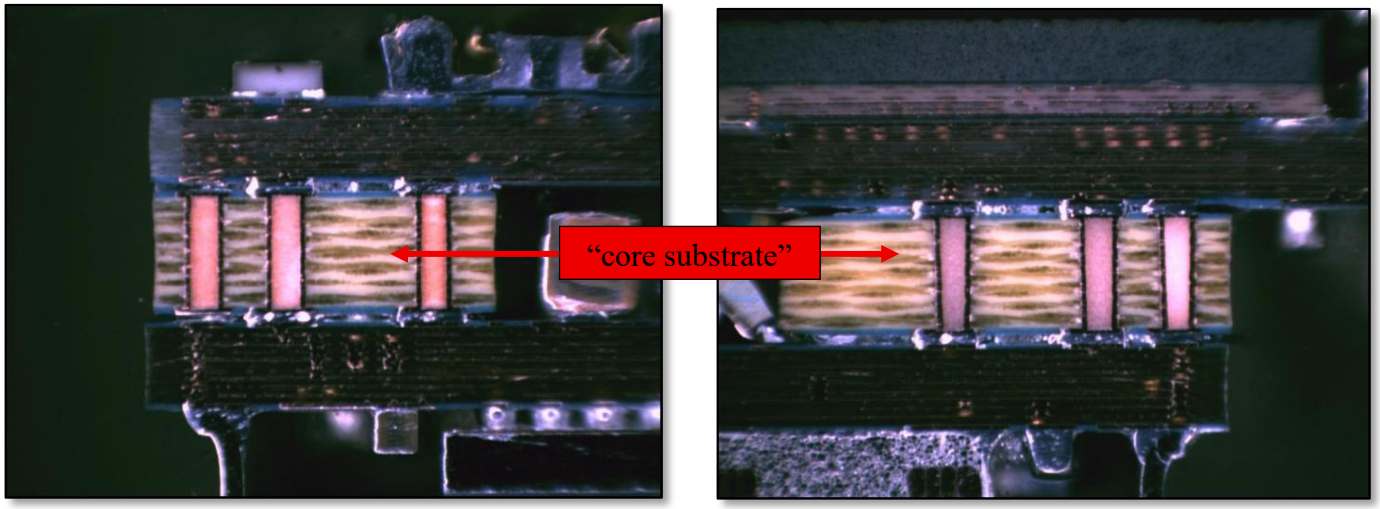
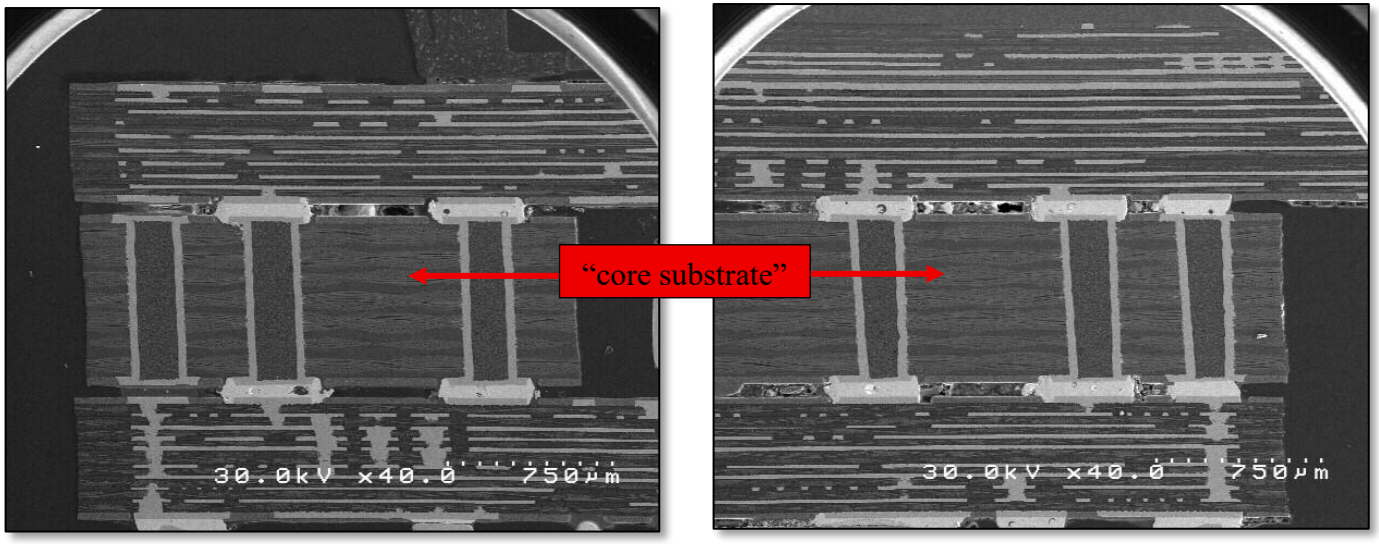
'202 Claim 1	Elements in Accused Smartphones
[1c] at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector, such as a metallic structure or any other suitable spacer connector. The at least one spacer connector is interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. Therefore, the at least one spacer connector separates the top package substrate from the bottom package substrate. For example, the Samsung Galaxy S22 comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate:  (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

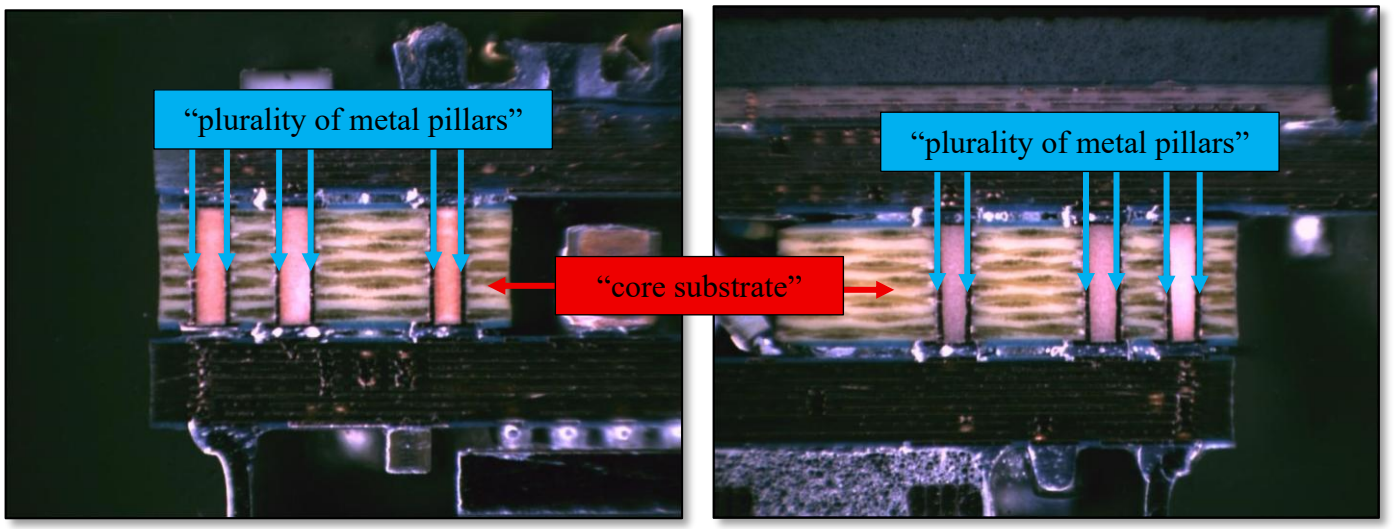
Exhibit C – U.S. Patent No. 9,859,202 (Accused Smartphones)
"at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate"

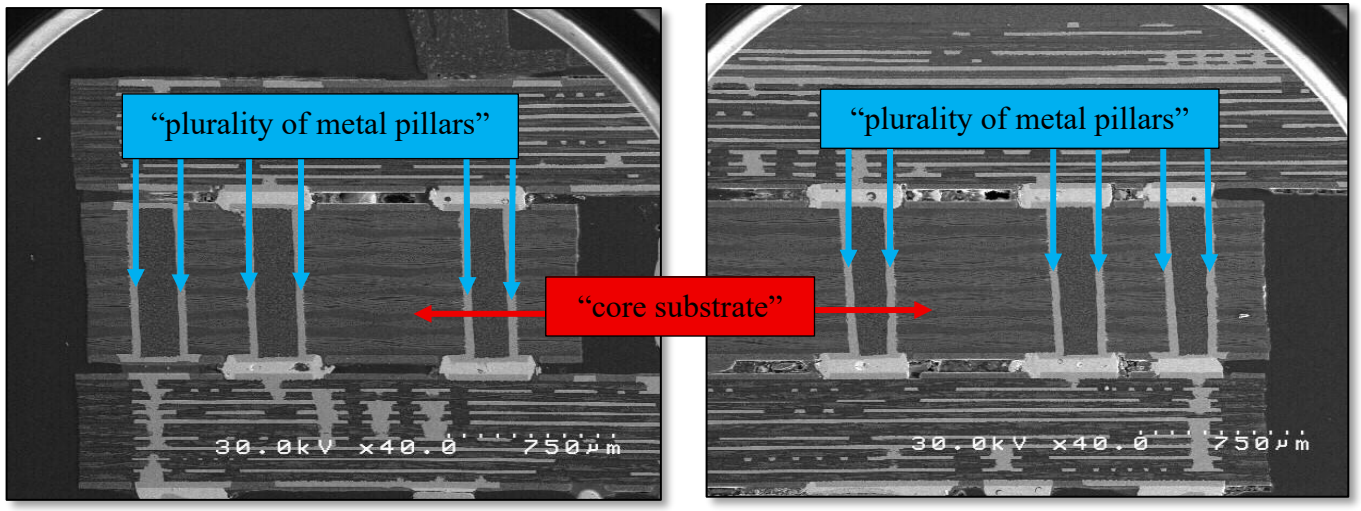
'202 Claim 1	Elements in Accused Smartphones
	 (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

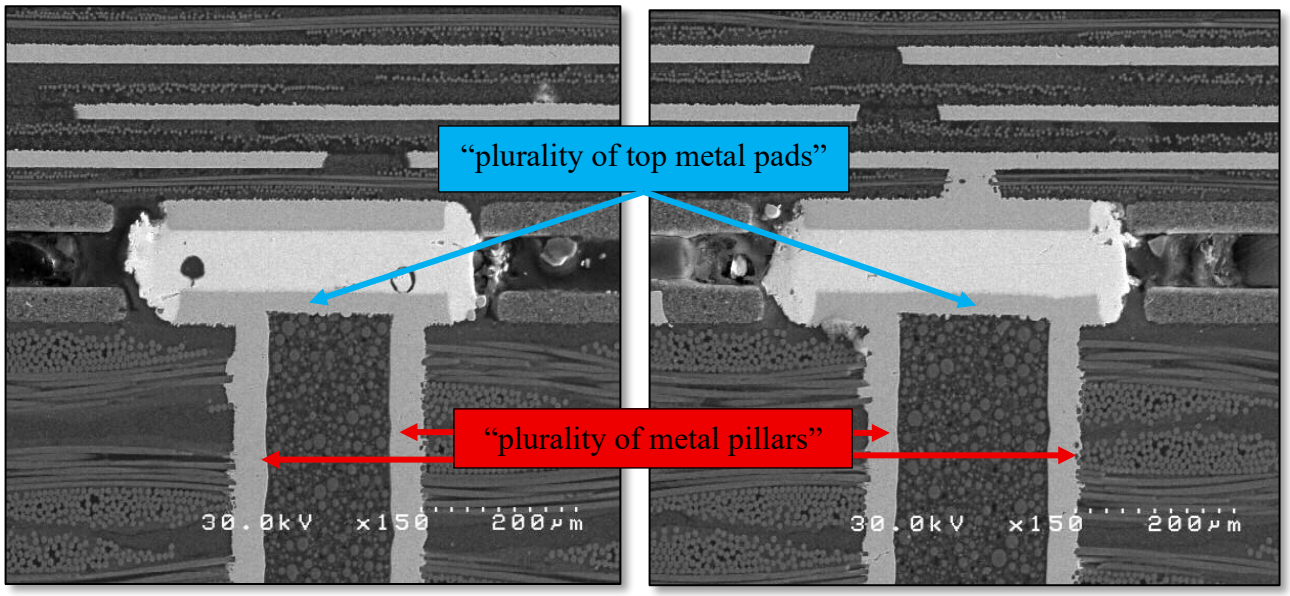
'202 Claim 1	Elements in Accused Smartphones
[1d-pre] wherein the spacer connector comprises:	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. See below.

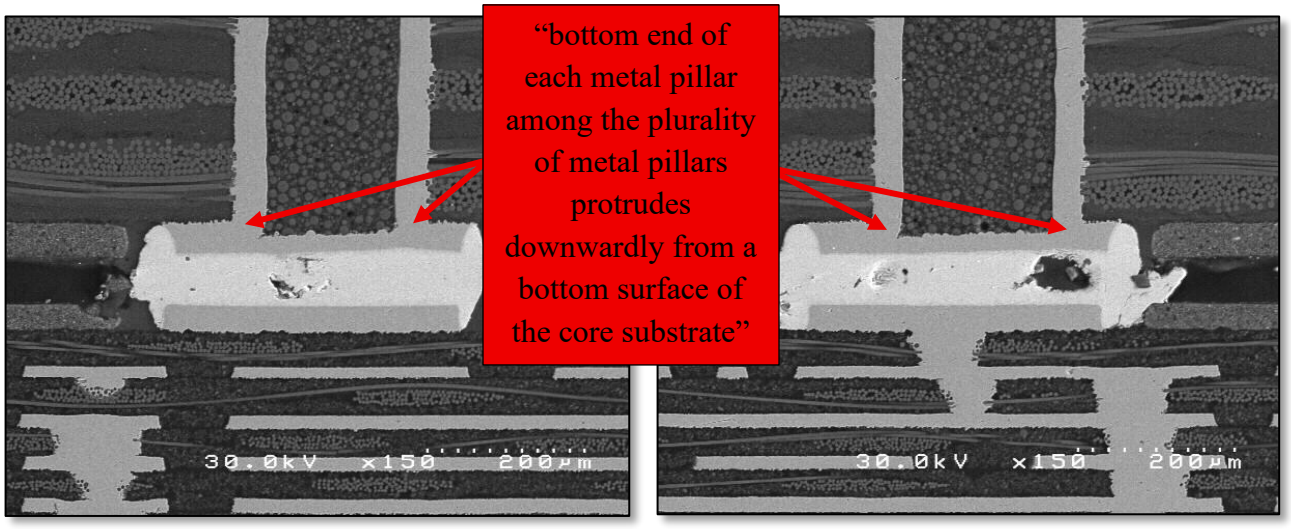
'202 Claim 1	Elements in Accused Smartphones
[1d-1] a core substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a core substrate, such as a silicon substrate or any other suitable core substrate. For example, the at least one spacer connector of the Samsung Galaxy S22 comprises a core substrate:  (optical view showing the core substrate)

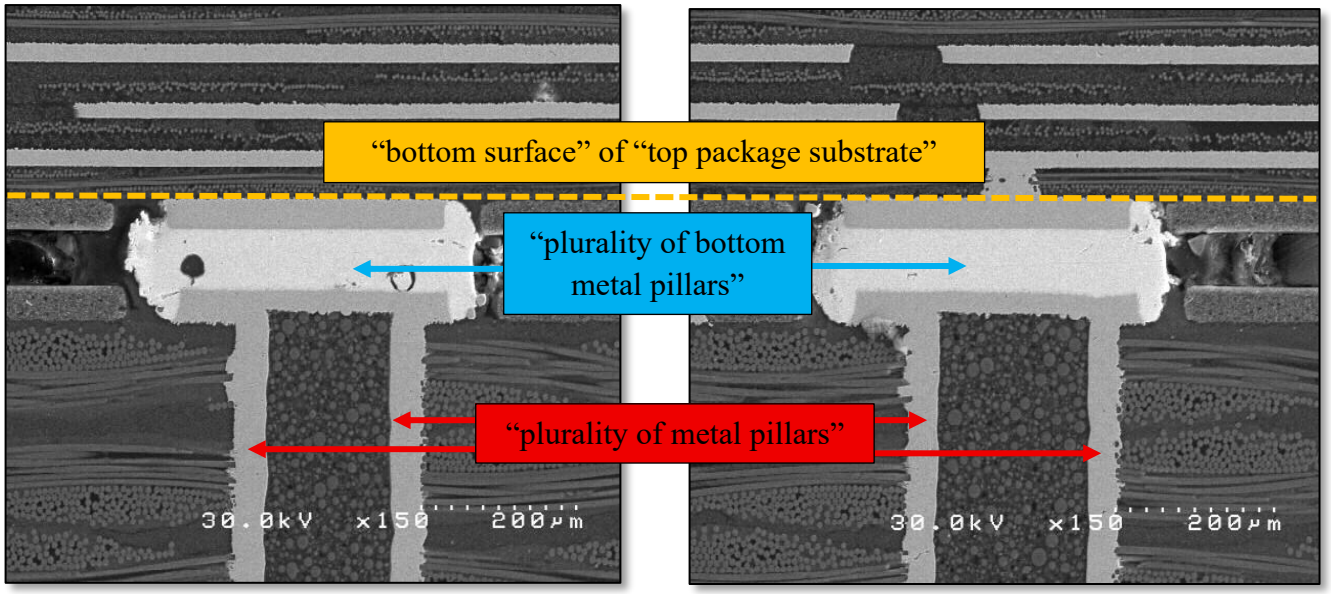
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the core substrate)

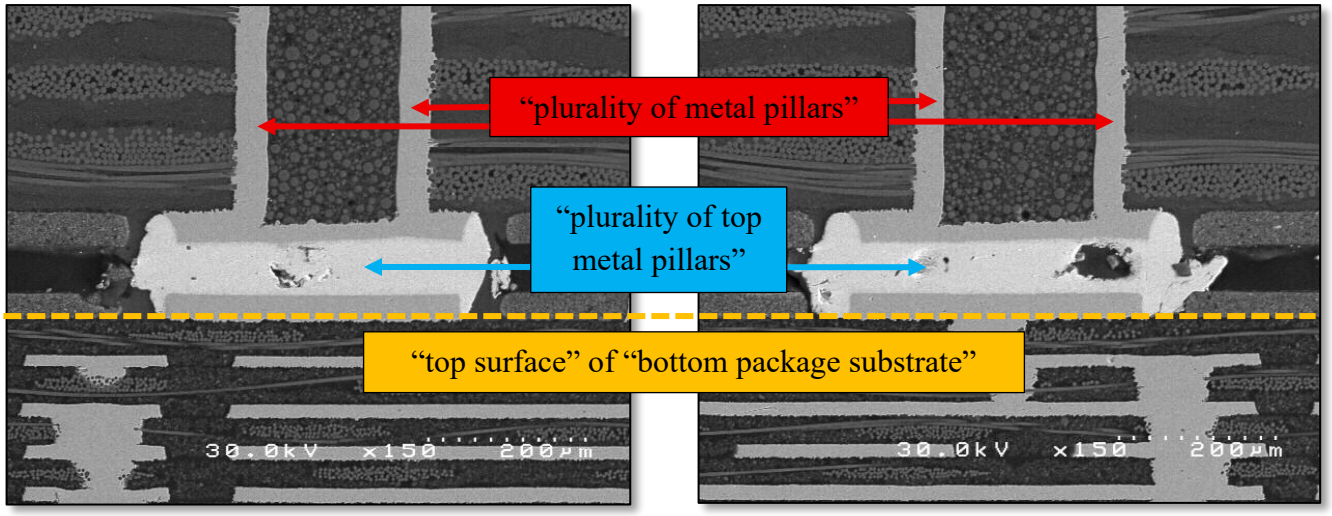
'202 Claim 1	Elements in Accused Smartphones
[1d-2] a plurality of metal pillars, each passing through the core substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of metal pillars, each passing through the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of metal pillars, such as copper pillars or any other suitable metal pillars. Each of the plurality of metal pillars passes through (*e.g.*, intersects) the core substrate. For example, the at least one spacer connector of the Samsung Galaxy S22 comprises a plurality of metal pillars, each passing through the core substrate:  (optical view showing the plurality of metal pillars, each passing through the core substrate)

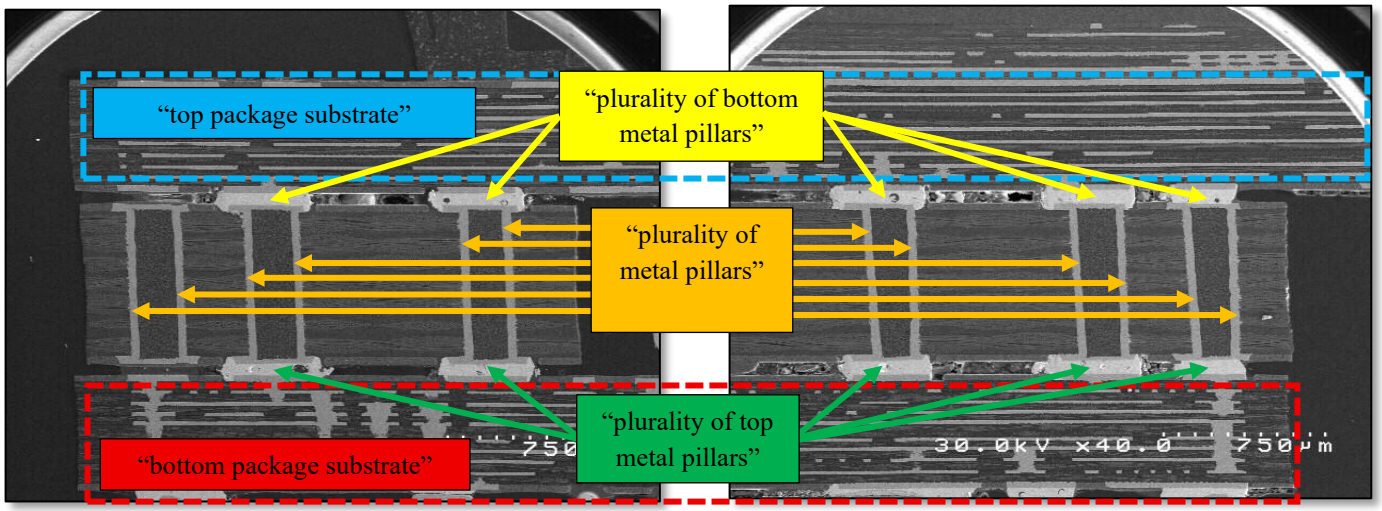
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the plurality of metal pillars, each passing through the core substrate)

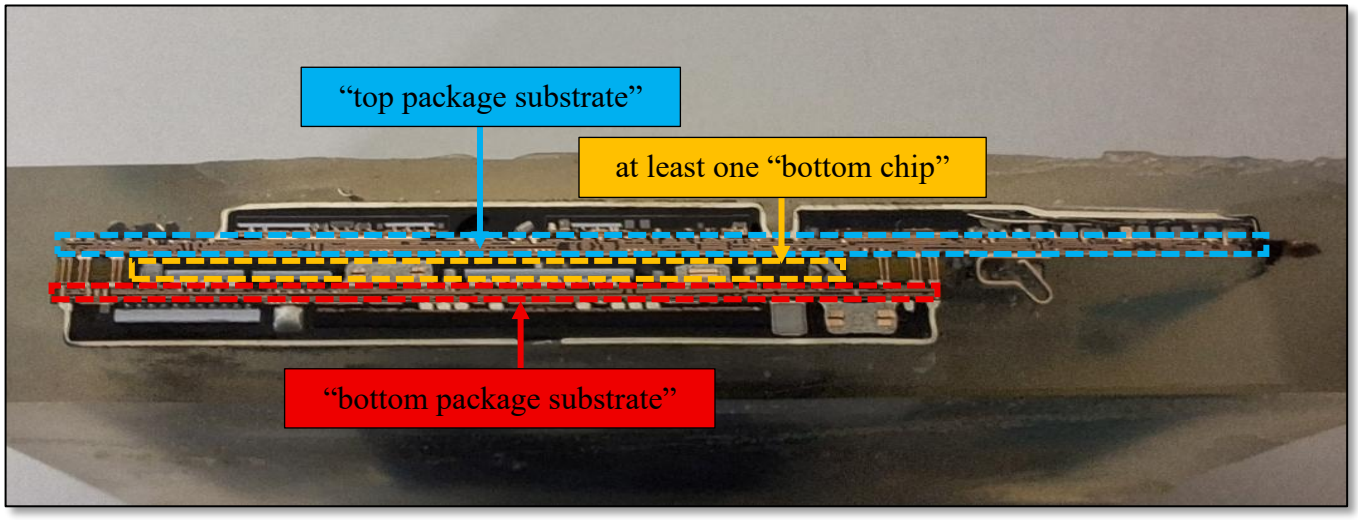
'202 Claim 1	Elements in Accused Smartphones
[1d-3] a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of top metal pads, such as copper metal pads or any other suitable metal pads. Each of the plurality of metal pads are connected to a top end of a corresponding metal pillar among the plurality of metal pillars. For example, the at least one spacer connector of the Samsung Galaxy S22 comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars:  (scanning electron microscope ("SEM") view showing the plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars)

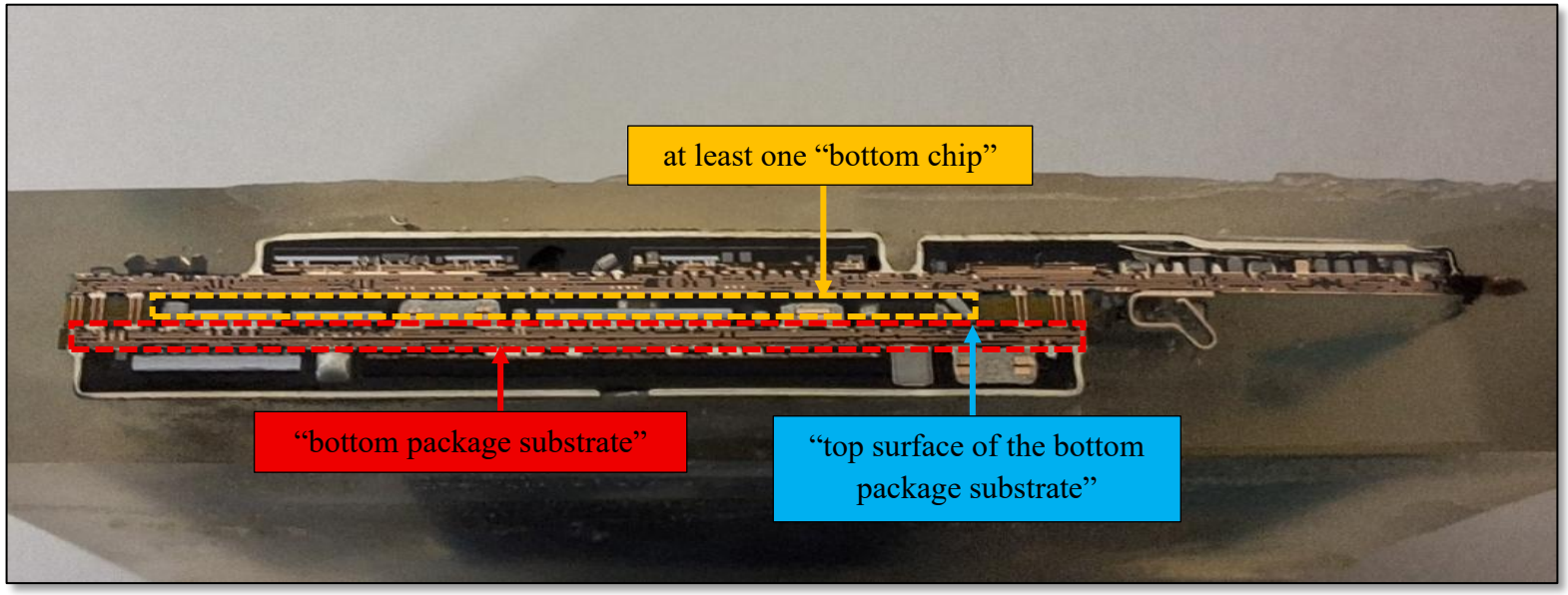
'202 Claim 1	Elements in Accused Smartphones
[1d-4] wherein a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. In the at least one spacer connector of Samsung's Accused Smartphones, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. In the at least one spacer connector, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from (*e.g.*, extends past) a bottom surface of the core substrate. For example, in the at least one spacer connector of the Samsung Galaxy S22, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate:  (scanning electron microscope ("SEM") view showing the bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate)

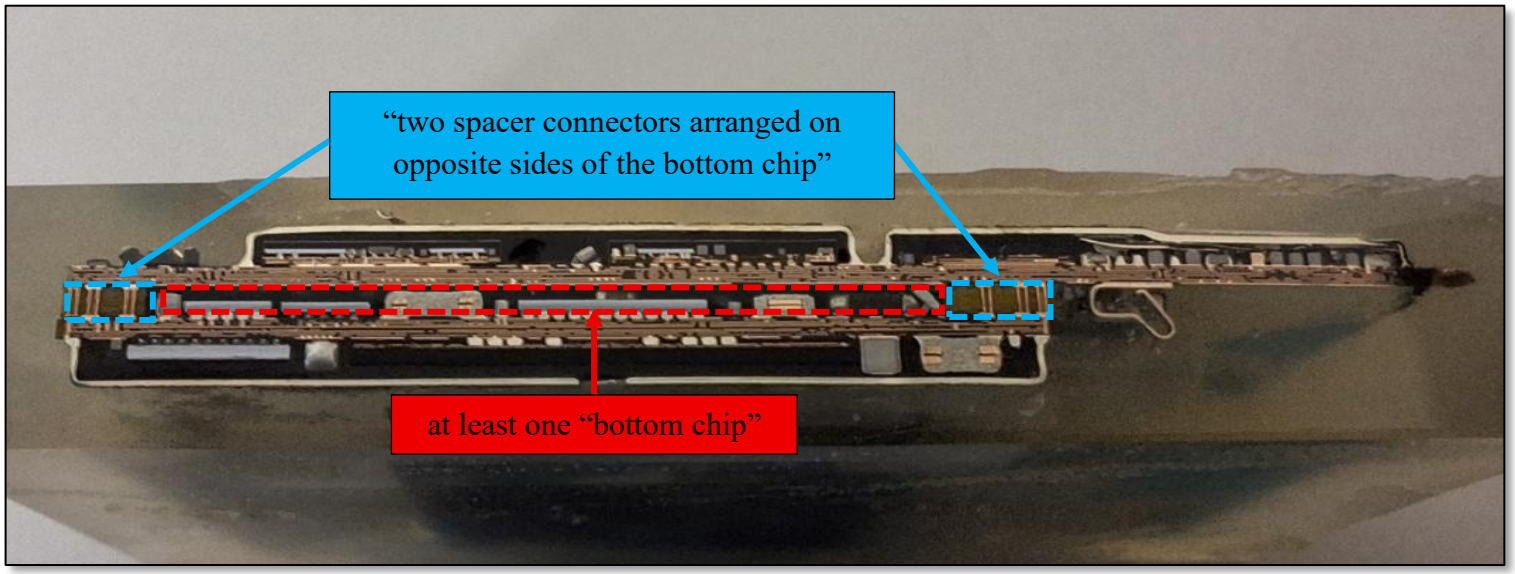
'202 Claim 1	Elements in Accused Smartphones
[1e] the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate has a bottom surface. Additionally, a plurality of bottom metal pillars, such as tin metal pillars or any other suitable bottom metal pillars, are connected to the bottom surface of the top package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the top package substrate of the Samsung Galaxy S22 has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

'202 Claim 1	Elements in Accused Smartphones
[1f] the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom package substrate of Samsung's Accused Smartphones has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom package substrate has a top surface. Additionally, a plurality of top metal pillars, such as tin metal pillars or any other suitable top metal pillars, are connected to the top surface of the bottom package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the bottom package substrate of the Samsung Galaxy S22 has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

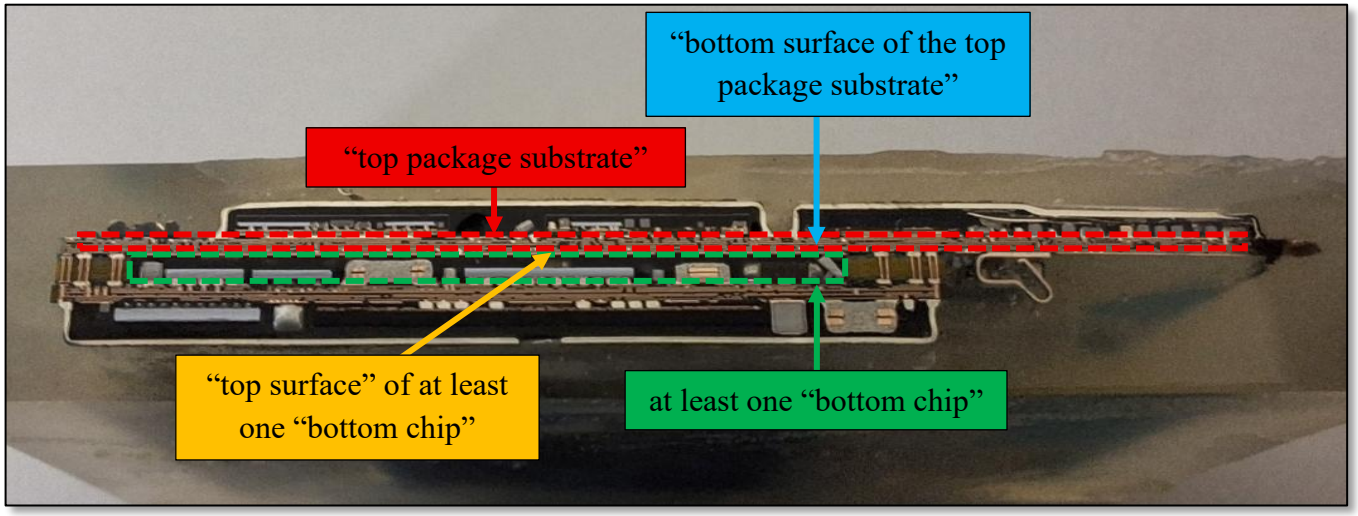
'202 Claim 1	Elements in Accused Smartphones
[1g] the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate is electrically coupled to the bottom package substrate. Additionally, current flows between the top package substrate and the bottom package substrate via the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate, all of which are electrically coupled together. For example, the top package substrate of the Samsung Galaxy S22 is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate:  (scanning electron microscope ("SEM") view showing the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1h] a bottom chip arranged in the space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, arranged between the space between the bottom package substrate and the top package substrate formed by the at least one spacer connector. For example, the Samsung Galaxy S22 comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate:  (optical view showing the bottom chip arranged in the space between the bottom package substrate and the top package substrate)

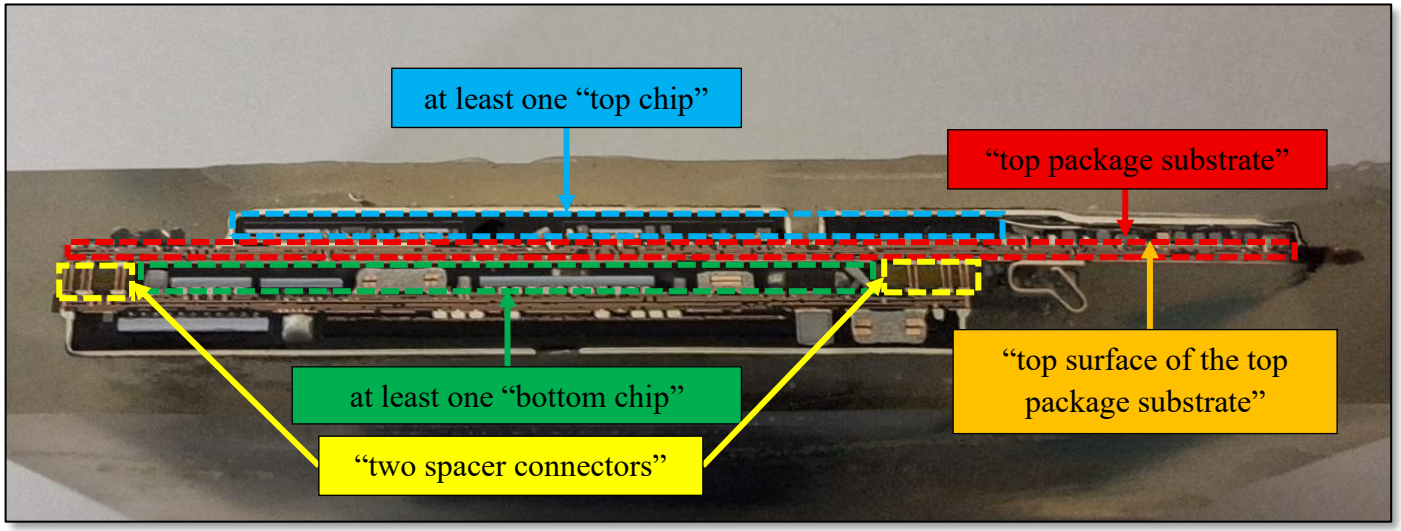
'202 Claim 1	Elements in Accused Smartphones
[1i] the bottom chip is mounted to the top surface of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged mounted to the top surface of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, mounted to the top surface of the bottom package substrate. For example, the bottom chip of the Samsung Galaxy S22 is mounted to the top surface of the bottom package substrate:  (optical view showing the bottom chip mounted to the top surface of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1j] the at least one spacer connector comprises two spacer connectors arranged on opposite sides of the bottom chip.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises two spacer connectors arranged on opposite sides of the bottom chip. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the at least one spacer connector includes two spacer connectors arranged on opposite sides of the bottom chip. For example, the at least one spacer connector of the Samsung Galaxy S22 comprises two spacer connectors arranged on opposite sides of the bottom chip:  (optical view showing the at least one spacer connector comprising two spacer connectors arranged on opposite sides of the bottom chip)

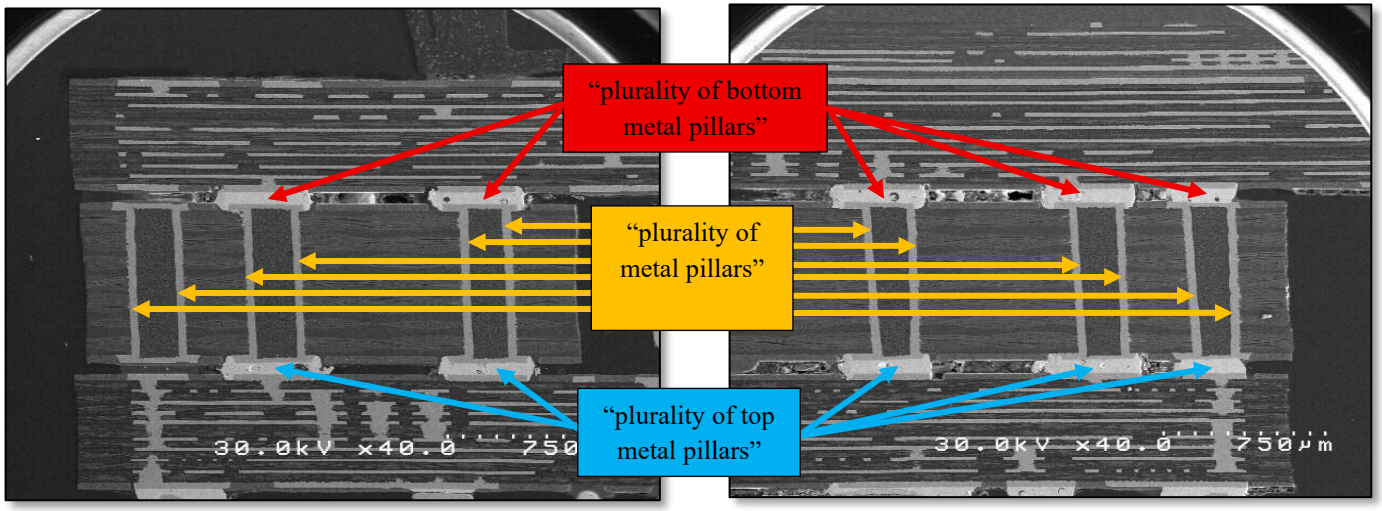
"2. The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate."

'202 Claim 2	Elements in Accused Smartphones
[2] The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom chip of Samsung's Accused Smartphones has a top surface that is spaced downwardly from the bottom surface of the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom chip has a top surface that is spaced downwardly from the bottom surface of the top package substrate. For example, in the Samsung Galaxy S22, a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate:  (optical view showing the top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate)

"3. The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors."

'202 Claim 3	Elements in Accused Smartphones
[3] The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors.	TopWire incorporates the disclosures set forth for Claims 1 and 2 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top chip, such as a memory chip or any other suitable top chip, mounted to the top surface of the top package substrate. The top package substrate is stacked on top of the bottom package substrate such that the top chip overlaps the bottom chip and each of the two spacer connectors. For example, the Samsung Galaxy S22 comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors:  (optical view showing the top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors)

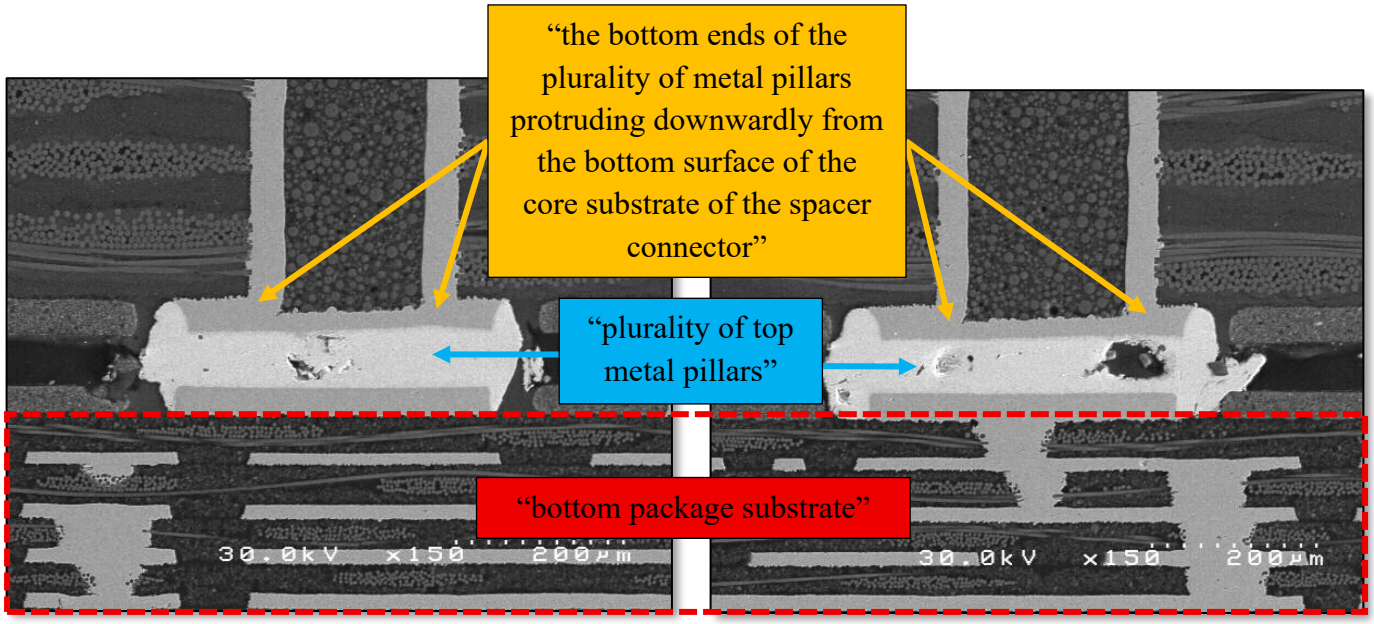
"4. The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate."

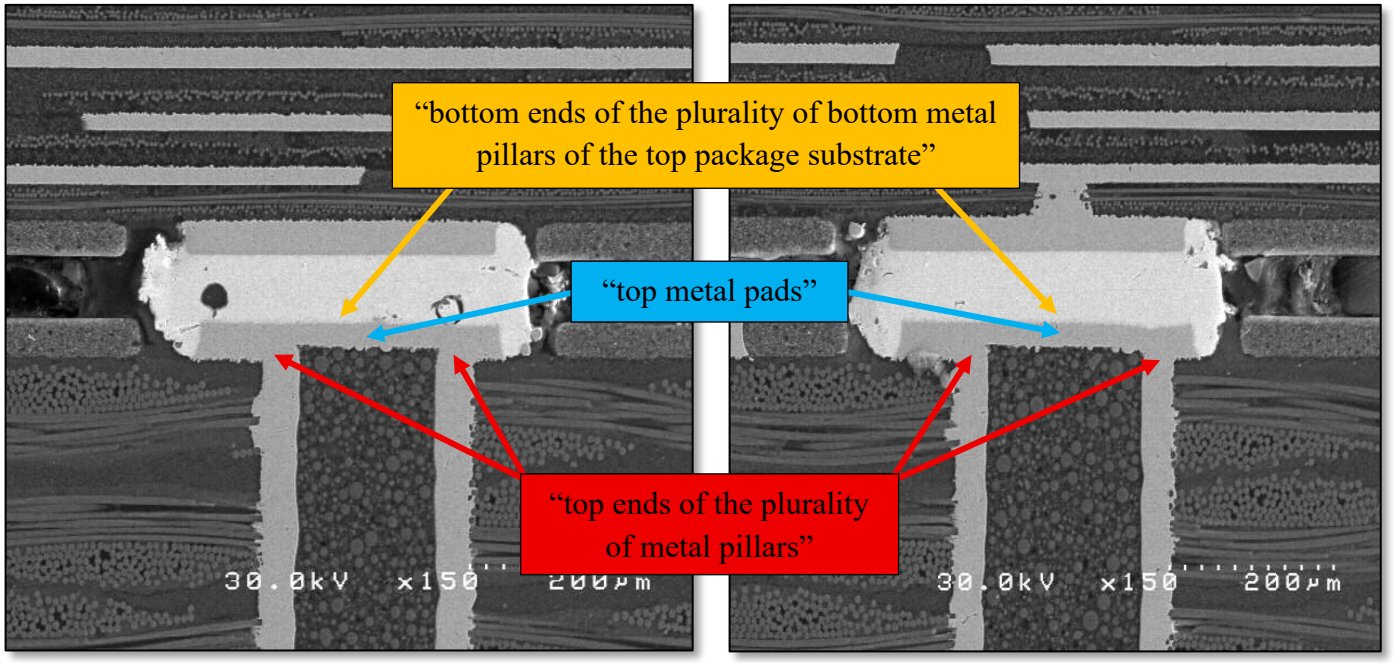
'202 Claim 4	Elements in Accused Smartphones
[4] The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. Each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned (*e.g.*, vertically aligned) with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. For example, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy S22 is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate:  (scanning electron microscope ("SEM") view showing each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate)

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
[6a] The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in Samsung's Accused Smartphones are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector. The plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. For example, the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in the Samsung Galaxy S22 are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate:

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate)

'202 Claim 6	Elements in Accused Smartphones
[**6b**] bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector.	TopWire incorporates the disclosures set forth for Claims 1, 4, and 6 as if set forth herein. The bottom ends of the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the bottom ends of the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy S22 are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector: 

"bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

'202 Claim 6	Elements in Accused Smartphones
	(scanning electron microscope ("SEM") view showing bottom ends of the plurality of bottom metal pillars of the top package substrate that are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

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"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

'202 Claim 9	Elements in Accused Smartphones
[9] The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The spacer connector in Samsung's Accused Smartphones further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a spacer connector. The spacer connector further includes a plurality of bottom metal pads, such as copper metal pads or any other suitable bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars. The bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the spacer connector in the Samsung Galaxy S22 further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

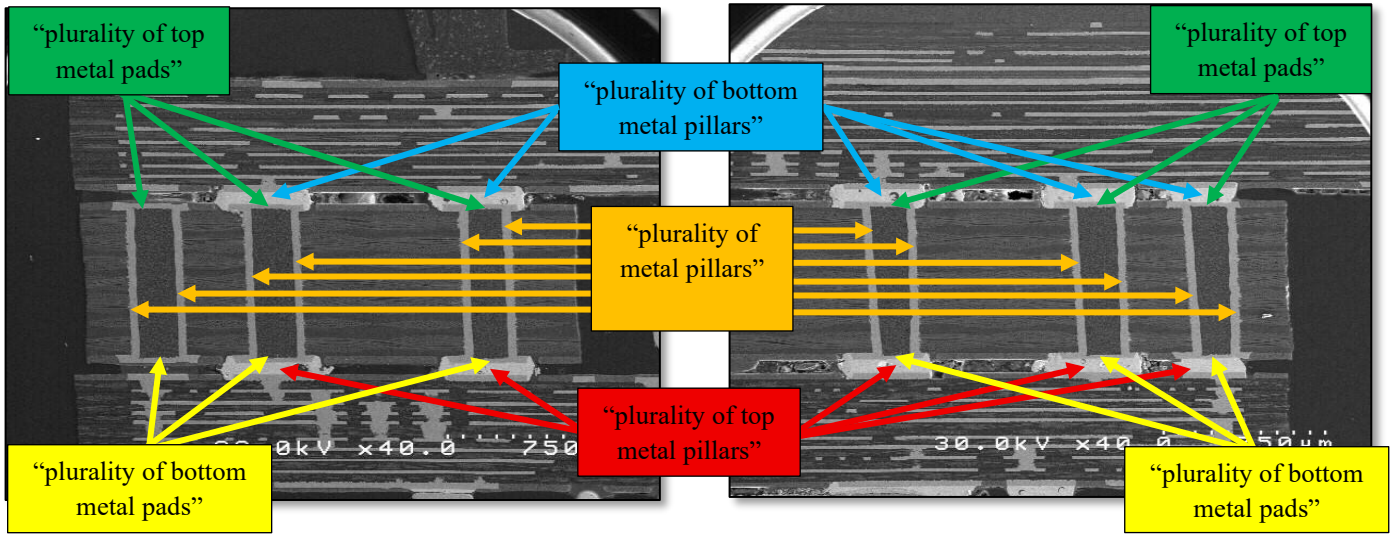
'202 Claim 9	Elements in Accused Smartphones
the corresponding top metal pads of the spacer connector.	 (scanning electron microscope ("SEM") view showing the spacer connector further comprising a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars being connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate being connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

EXHIBIT D

Exhibit D – U.S. Patent No. 9,859,202 (Accused Smartphones)
"1. A structure, comprising:"

'202 Claim 1	Elements in Accused Smartphones
[1-pre] A structure, comprising:	To the extent the preamble is limiting, Samsung's Accused Smartphones[1] comprise a structure. *E.g.*, Samsung's Accused Smartphones incorporate structures, such as motherboards (sometimes also referred to as "logic boards"). The motherboards in Samsung's Accused Smartphones contain integrated circuits (sometimes also referred to as "chips"). The motherboard performs many core functions of Samsung's Accused Smartphones. (showing the specification of a Samsung Galaxy S23). GSMARENA, *Specifications*, available at https://www.gsmarena.com/samsung_galaxy_s23-12082.php/ (last visited January 26, 2026).

NETWORK	Technology	GSM / CDMA / HSPA / EVDO / LTE / 5G
LAUNCH	Announced	2023, February 01
	Status	Available. Released 2023, February 17
BODY	Dimensions	146.3 x 70.9 x 7.6 mm (5.76 x 2.79 x 0.30 in)
	Weight	168 g (5.93 oz)
	Build	Glass front (Gorilla Glass Victus 2), glass back (Gorilla Glass Victus 2), aluminum frame
	SIM	· Nano-SIM + eSIM · Nano-SIM + Nano-SIM + eSIM (max 2 at a time) IP68 dust tight and water resistant (immersible up to 1.5m for 30 min) Armor aluminum frame
DISPLAY	Type	Dynamic AMOLED 2X, 120Hz, HDR10+, 1200 nits (HBM), 1750 nits (peak)
	Size	6.1 inches, 90.1 cm^2 (~86.8% screen-to-body ratio)
	Resolution	1080 x 2340 pixels, 19.5:9 ratio (~425 ppi density)
	Protection	Corning Gorilla Glass Victus 2
PLATFORM	OS	Android 13, up to 4 major Android upgrades, One UI 8
	Chipset	Qualcomm SM8550-AC Snapdragon 8 Gen 2 (4 nm)
	CPU	Octa-core (1x3.36 GHz Cortex-X3 & 2x2.8 GHz Cortex-A715 & 2x2.8 GHz Cortex-A710 & 3x2.0 GHz Cortex-A510)
	GPU	Adreno 740
MEMORY	Card slot	No
	Internal	128GB 8GB RAM, 256GB 8GB RAM, 512GB 8GB RAM UFS 3.1 - 128GB only UFS 4.0
MAIN CAMERA	Triple	50 MP, f/1.8, 24mm (wide), 1/1.56", 1.0µm, dual pixel PDAF, OIS 10 MP, f/2.4, 70mm (telephoto), 1/3.94", 1.0µm, PDAF, OIS, 3x optical zoom 12 MP, f/2.2, 13mm, 120° (ultrawide), 1/2.55" 1.4µm, Super Steady video
	Features	LED flash, auto-HDR, panorama
	Video	8K@24/30fps, 4K@30/60fps, 1080p@30/60/120/240fps, HDR10+, stereo sound rec., gyro-EIS
SELFIE CAMERA	Single	12 MP, f/2.2, 26mm (wide), 1/3.2", 1.12µm, dual pixel PDAF
	Features	HDR, HDR10+
	Video	4K@30/60fps, 1080p@30fps
SOUND	Loudspeaker	Yes, with stereo speakers
	3.5mm jack	No High-bitrate audio support
COMMS	WLAN	Wi-Fi 802.11 a/b/g/n/ac/6e, tri-band, Wi-Fi Direct
	Bluetooth	5.3, A2DP, LE
	Positioning	GPS, GLONASS, BDS, GALILEO
	NFC	Yes
	Radio	No
	USB	USB Type-C 3.2, OTG
FEATURES	Sensors	Fingerprint (under display, ultrasonic), accelerometer, gyro, proximity, compass, barometer Samsung DeX, Samsung Wireless DeX (desktop experience support)
BATTERY	Type	Li-Ion 3900 mAh
	Charging	25W wired, PD3.0, 50% in 30 min 15W wireless (Qi) 4.5W reverse wireless

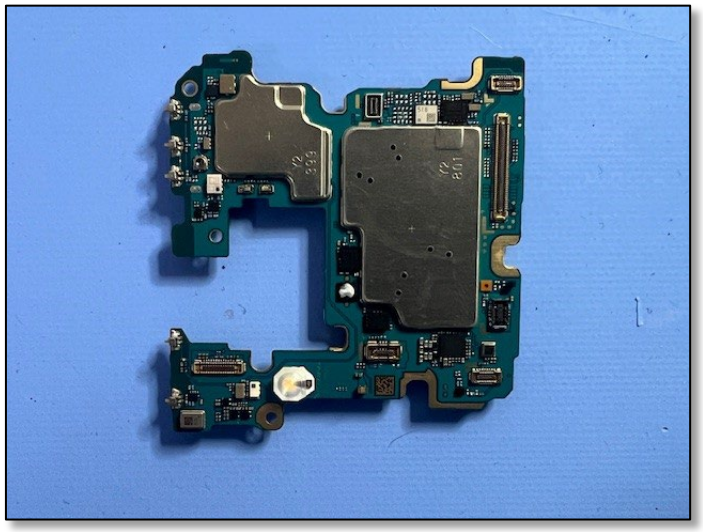
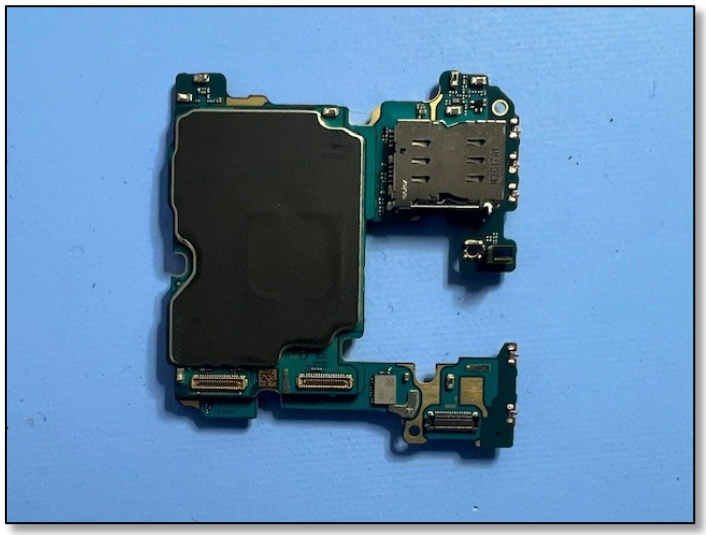
[1] The term Accused Smartphones is defined as those smartphone products accused of infringement in the cover pleading of these contentions, and those further identified during discovery.

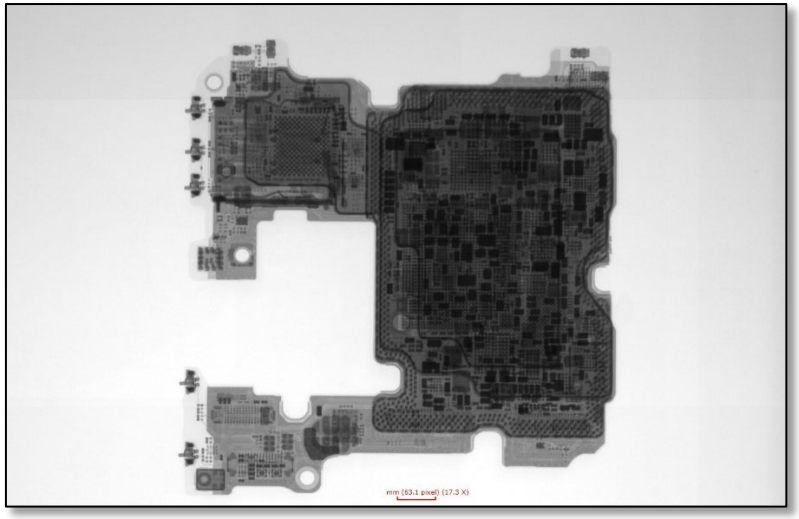
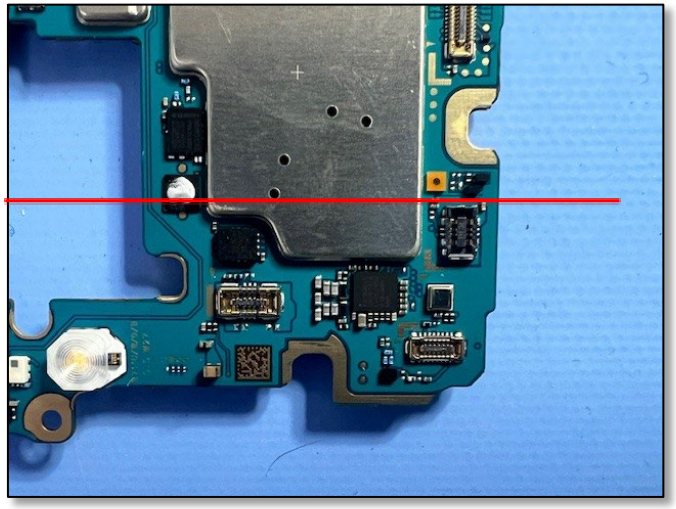
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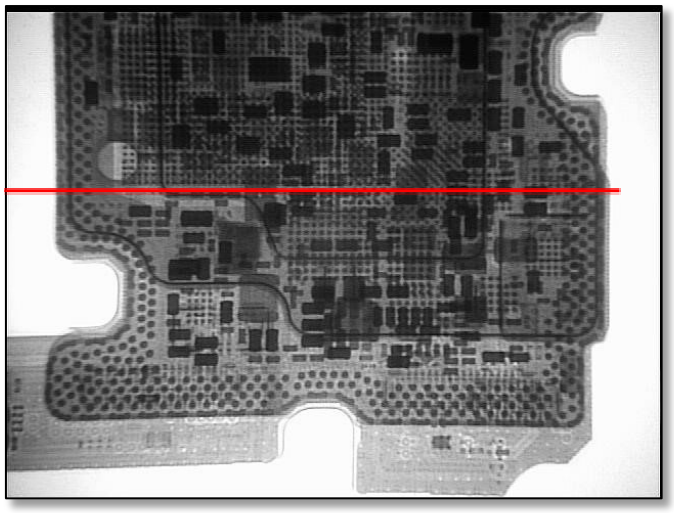
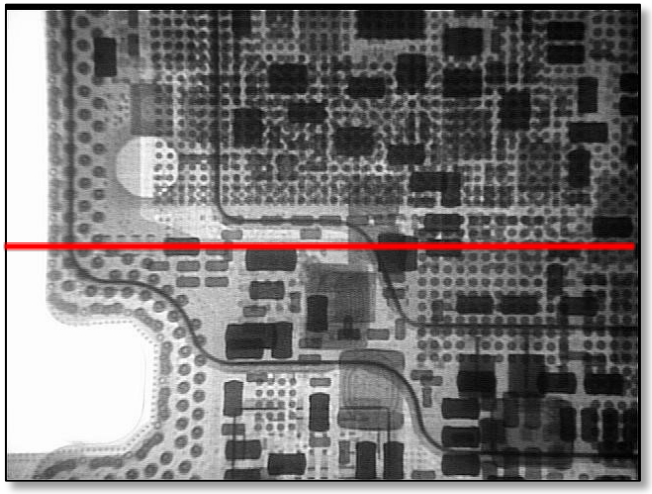
'202 Claim 1	Elements in Accused Smartphones
	 (showing a top-side view of a Samsung Galaxy S23)  (showing a bottom-side view of a Samsung Galaxy S23)

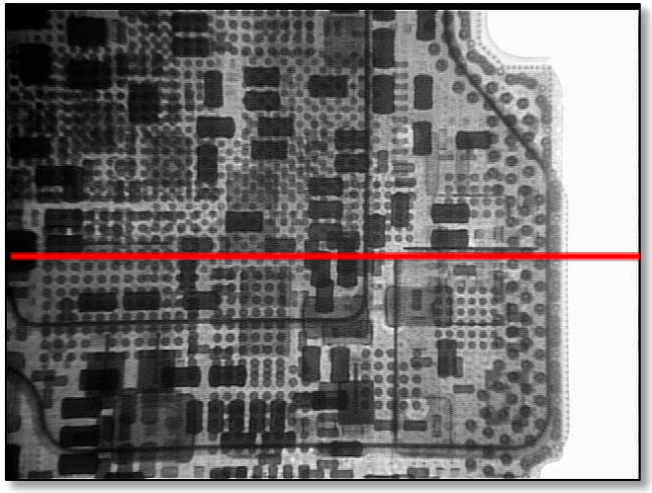
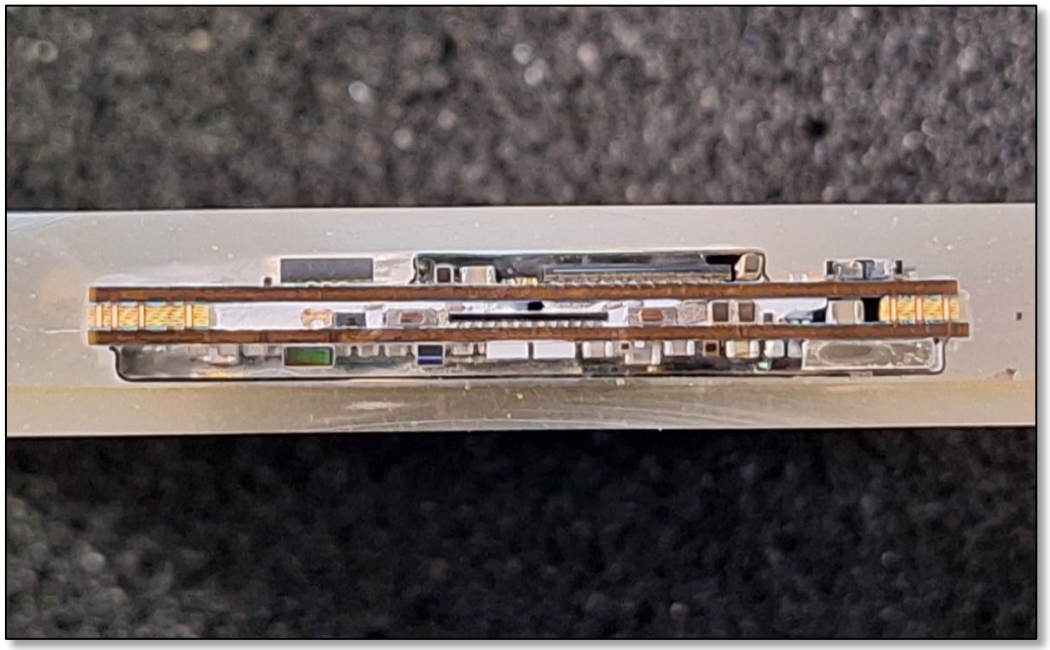
'202 Claim 1	Elements in Accused Smartphones
	 (showing a disassembled example Samsung Galaxy S23)  (showing a disassembled example Samsung Galaxy S23)

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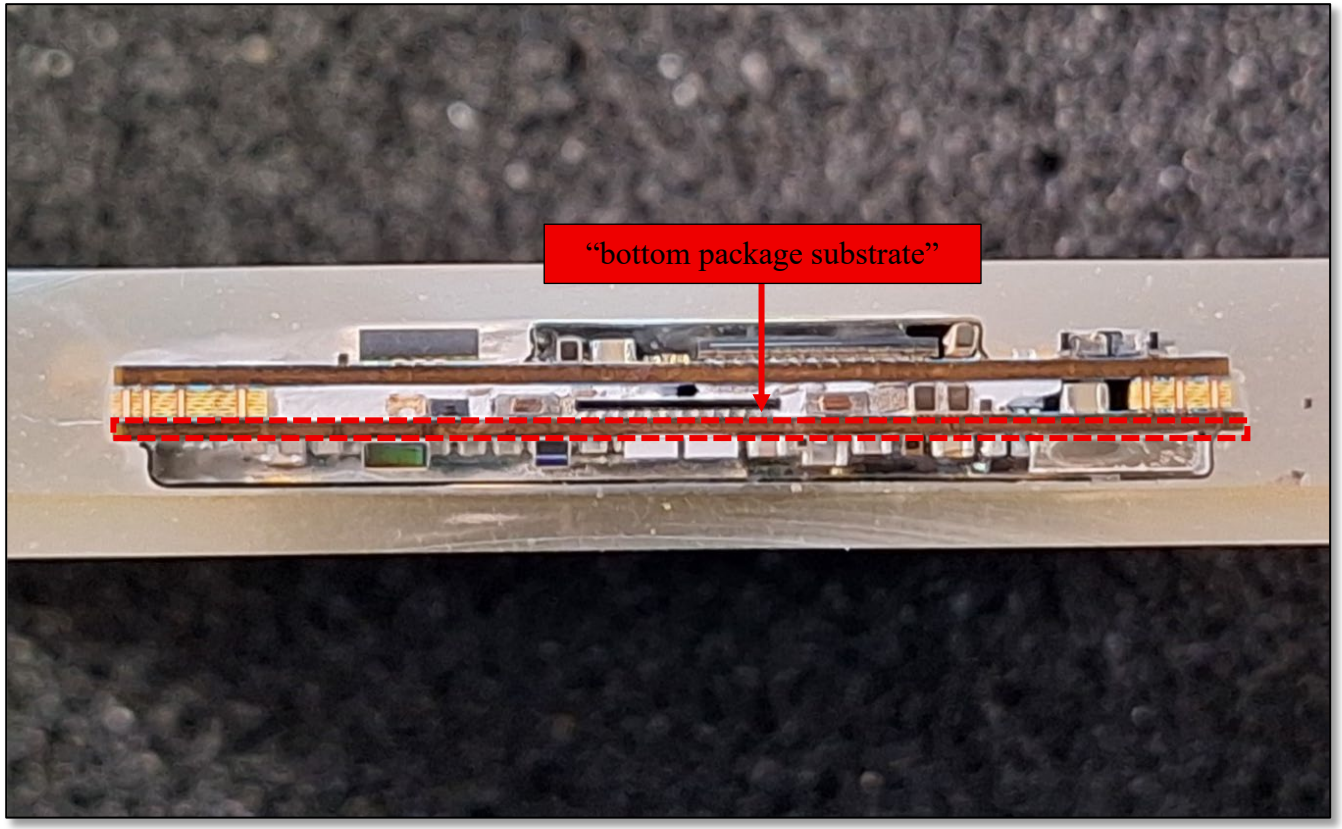
'202 Claim 1	Elements in Accused Smartphones
	For example, the Samsung Galaxy S23 comprises a structure:  (showing a top-side view of a motherboard in a Samsung Galaxy S23)  (showing a bottom-side view of a motherboard in a Samsung Galaxy S23)

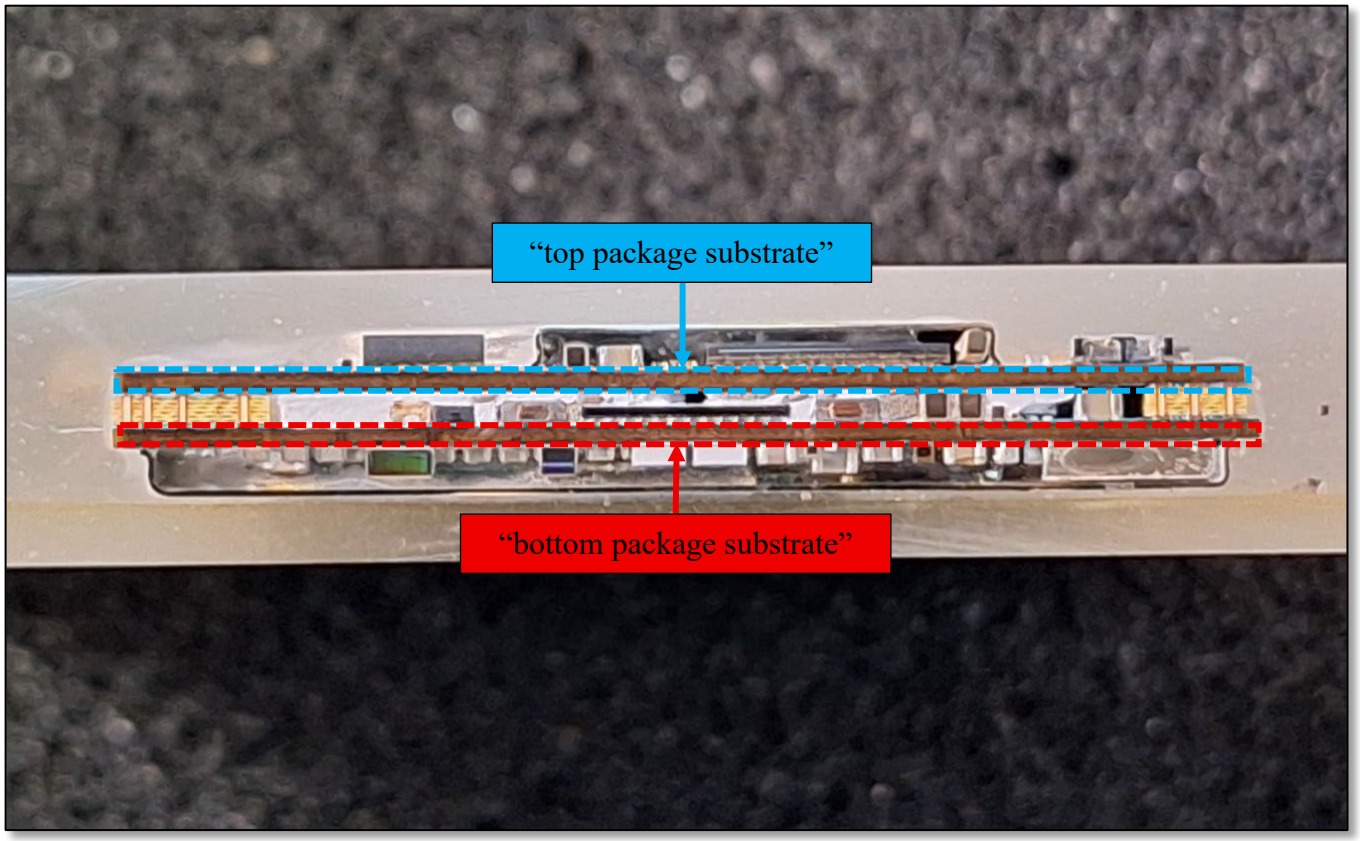
'202 Claim 1	Elements in Accused Smartphones
	 (showing an x-ray image of a motherboard in a Samsung Galaxy S23)  (showing a top-side view of a motherboard with a red cross-section area in a Samsung Galaxy S23)

'202 Claim 1	Elements in Accused Smartphones
	 (showing an x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S23)  (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S23)

'202 Claim 1	Elements in Accused Smartphones
	 (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S23)  (optical view showing a cross-section view of a motherboard in a Samsung Galaxy S23)

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'202 Claim 1	Elements in Accused Smartphones
[1a] a bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate. For example, the Samsung Galaxy S23 comprises a bottom package substrate:  (optical view showing a bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1b] a top package substrate stacked on top of the bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top package substrate stacked on top of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused products includes a top package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate, stacked on top of the bottom package substrate. For example, the Samsung Galaxy S23 comprises a top package substrate stacked on top of the bottom package substrate:  (optical view showing a top package substrate stacked on top of the bottom package substrate)

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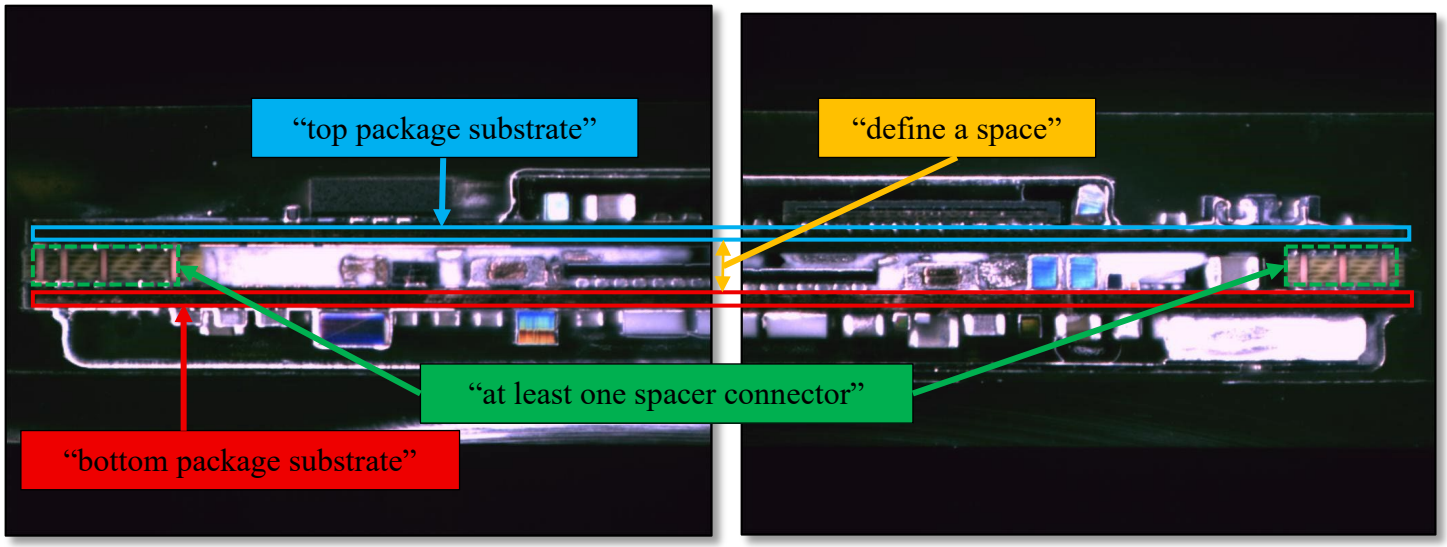
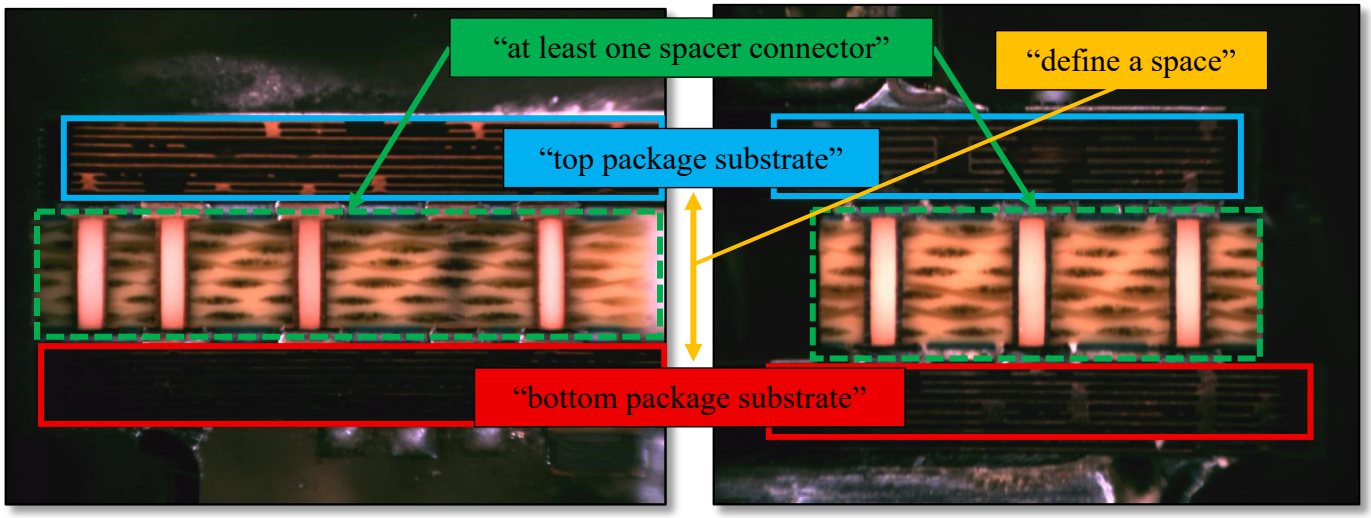
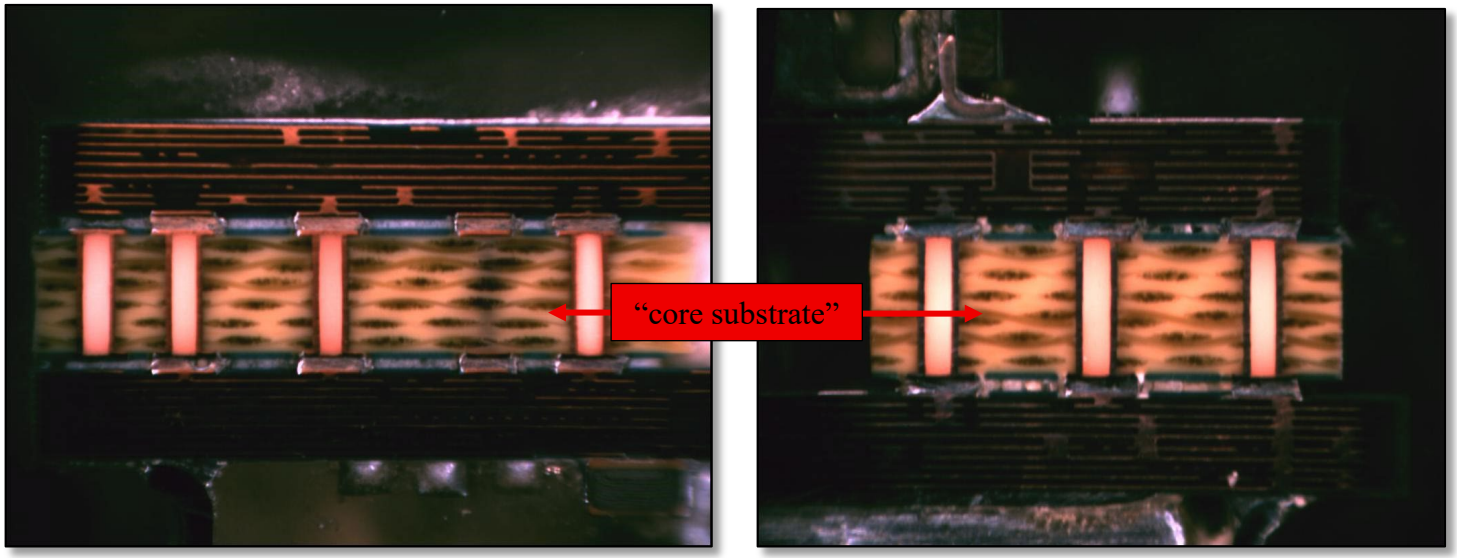
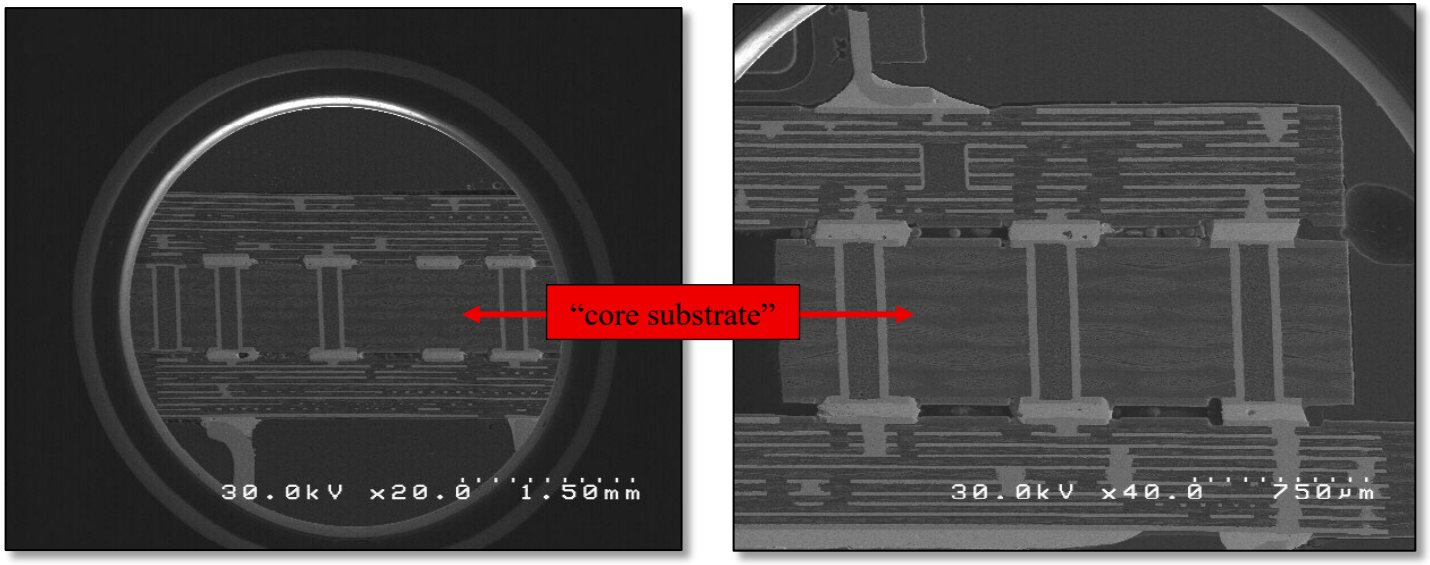
'202 Claim 1	Elements in Accused Smartphones
[1c] at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector, such as a metallic structure or any other suitable spacer connector. The at least one spacer connector is interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. Therefore, the at least one spacer connector separates the top package substrate from the bottom package substrate. For example, the Samsung Galaxy S23 comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate:  (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

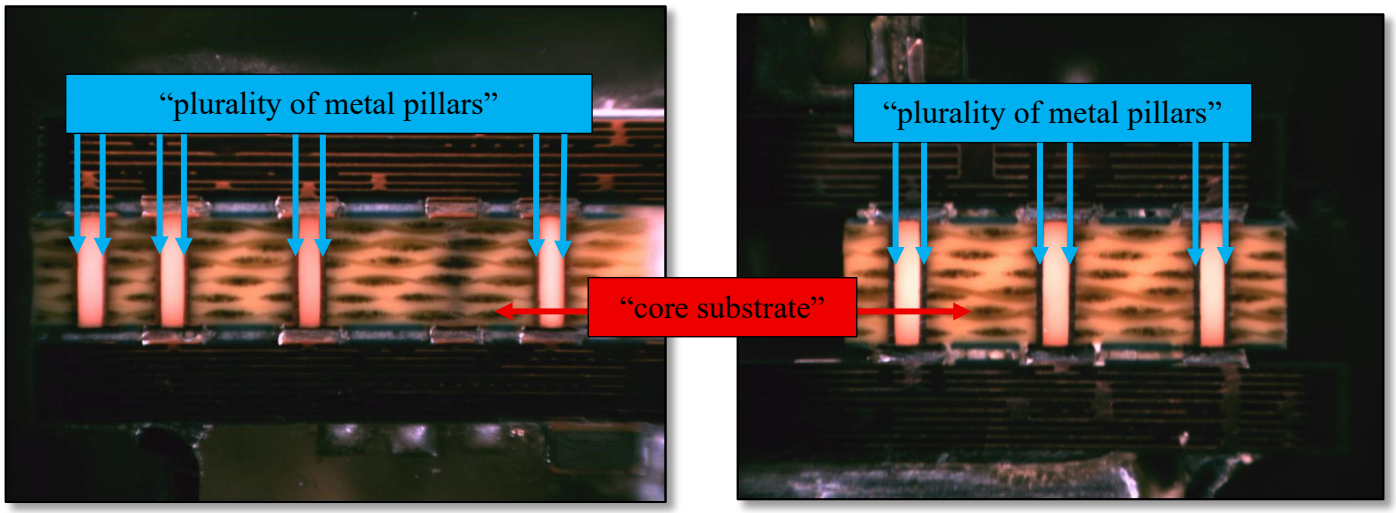
Exhibit D – U.S. Patent No. 9,859,202 (Accused Smartphones)
"at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate"

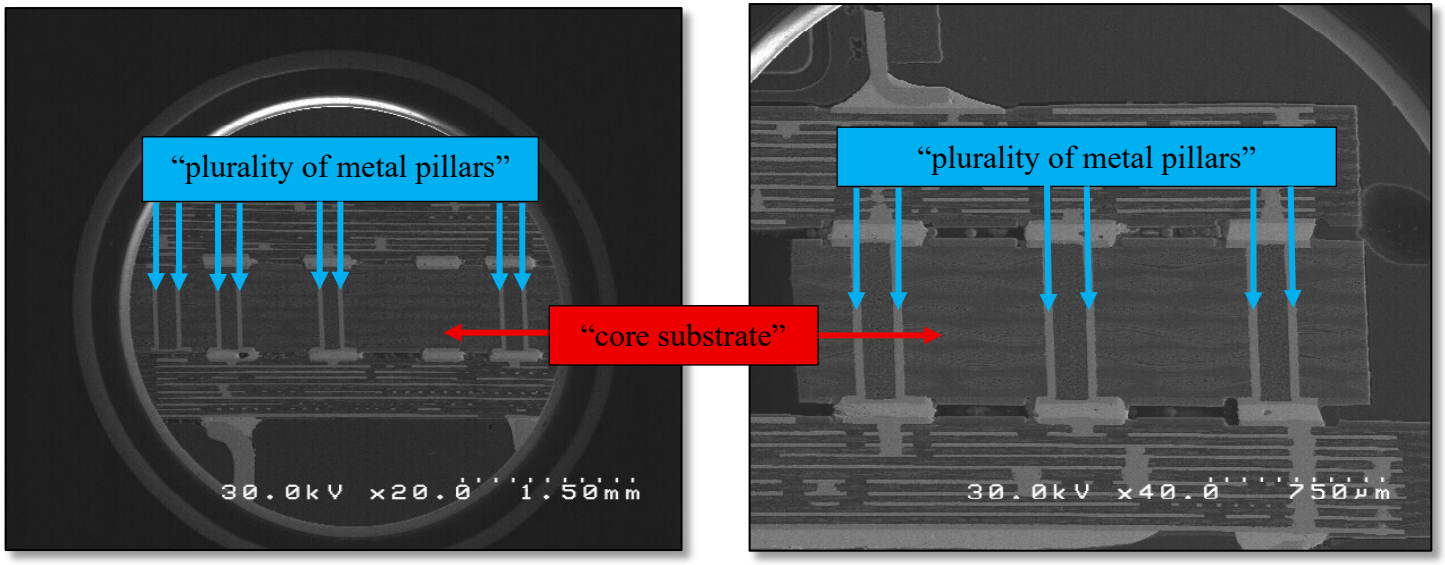
'202 Claim 1	Elements in Accused Smartphones
	 (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

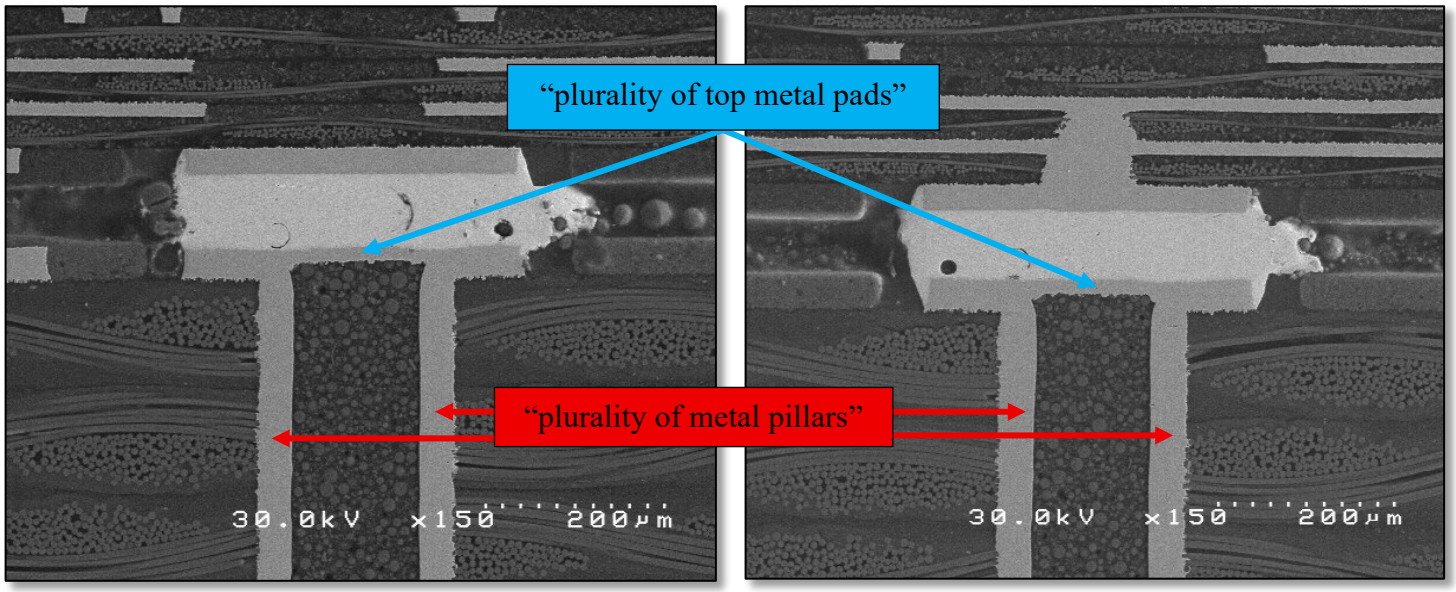
'202 Claim 1	Elements in Accused Smartphones
[1d-pre] wherein the spacer connector comprises:	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. See below.

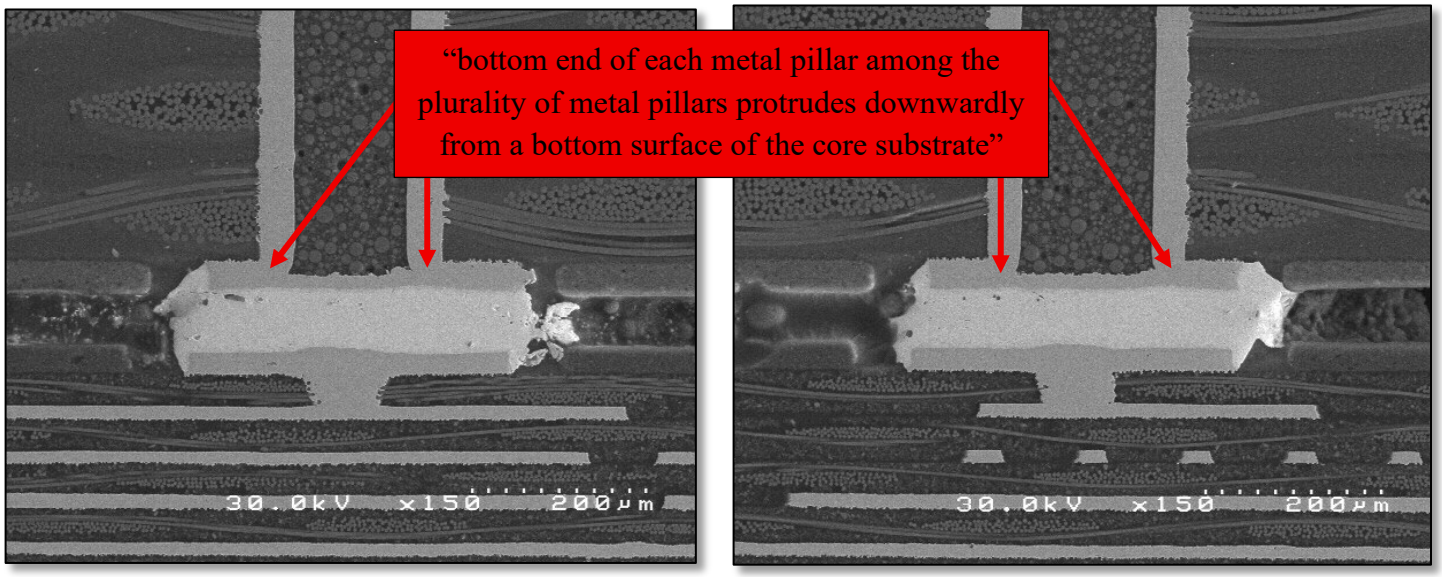
'202 Claim 1	Elements in Accused Smartphones
[1d-1] a core substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a core substrate, such as a silicon substrate or any other suitable core substrate. For example, the at least one spacer connector of the Samsung Galaxy S23 comprises a core substrate:  (optical view showing the core substrate)

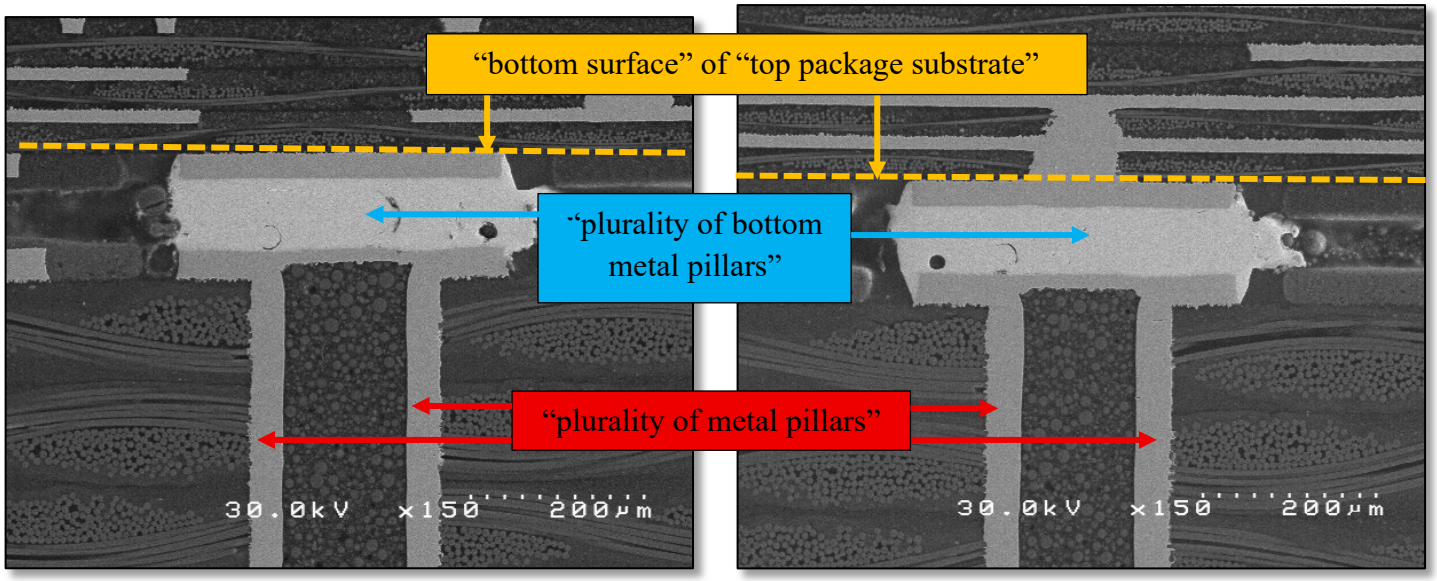
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the core substrate)

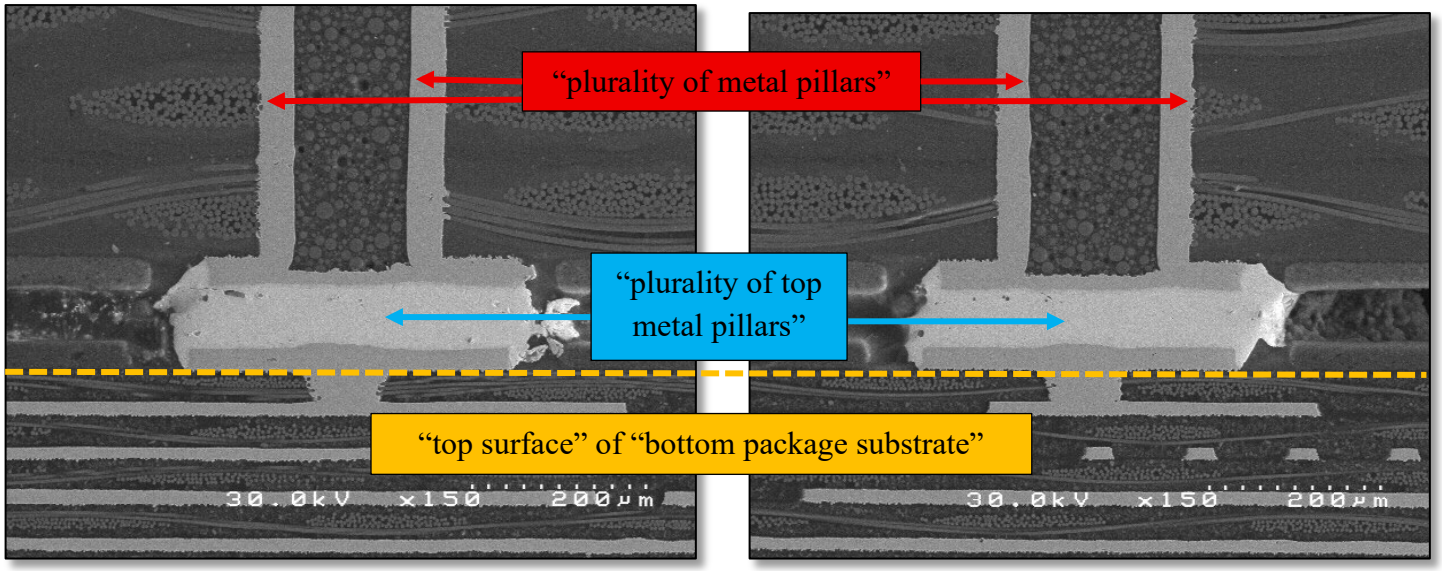
'202 Claim 1	Elements in Accused Smartphones
[1d-2] a plurality of metal pillars, each passing through the core substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of metal pillars, each passing through the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of metal pillars, such as copper pillars or any other suitable metal pillars. Each of the plurality of metal pillars passes through (*e.g.*, intersects) the core substrate. For example, the at least one spacer connector of the Samsung Galaxy S23 comprises a plurality of metal pillars, each passing through the core substrate:  (optical view showing the plurality of metal pillars, each passing through the core substrate)

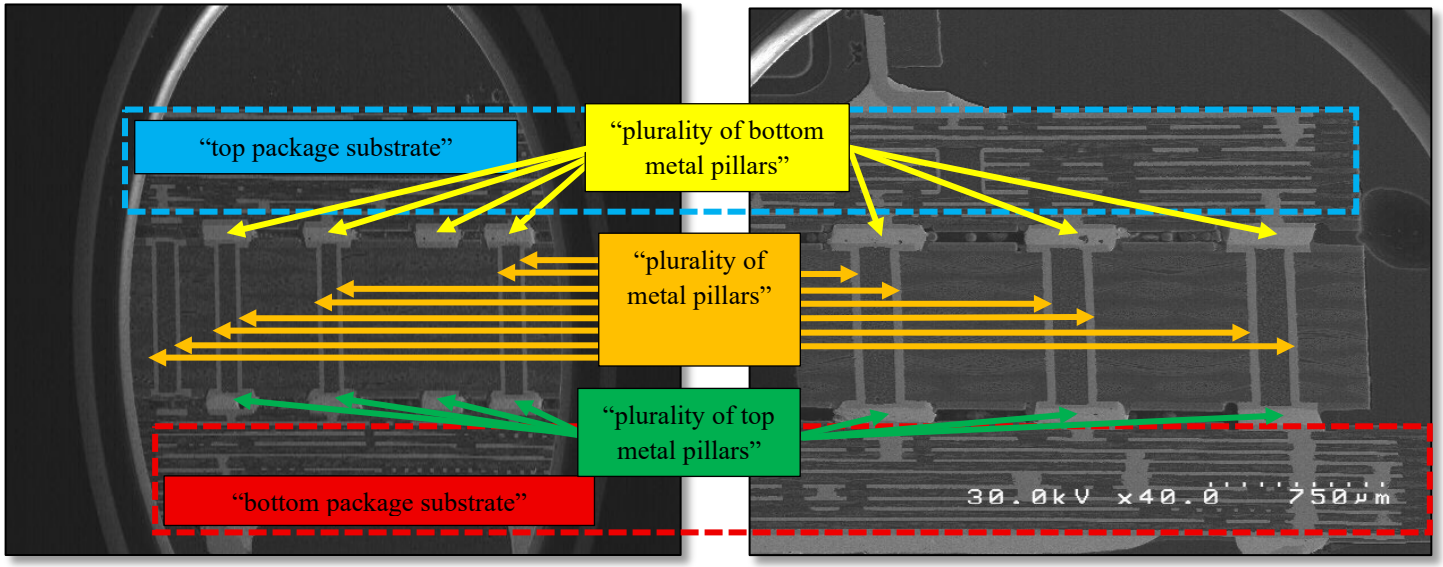
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the plurality of metal pillars, each passing through the core substrate)

'202 Claim 1	Elements in Accused Smartphones
[1d-3] a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of top metal pads, such as copper metal pads or any other suitable metal pads. Each of the plurality of metal pads are connected to a top end of a corresponding metal pillar among the plurality of metal pillars. For example, the at least one spacer connector of the Samsung Galaxy S23 comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars:  (scanning electron microscope ("SEM") view showing the plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars)

'202 Claim 1	Elements in Accused Smartphones
[1d-4] wherein a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. In the at least one spacer connector of Samsung's Accused Smartphones, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. In the at least one spacer connector, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from (*e.g.*, extends past) a bottom surface of the core substrate. For example, in the at least one spacer connector of the Samsung Galaxy S23, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate:  (scanning electron microscope ("SEM") view showing the bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate)

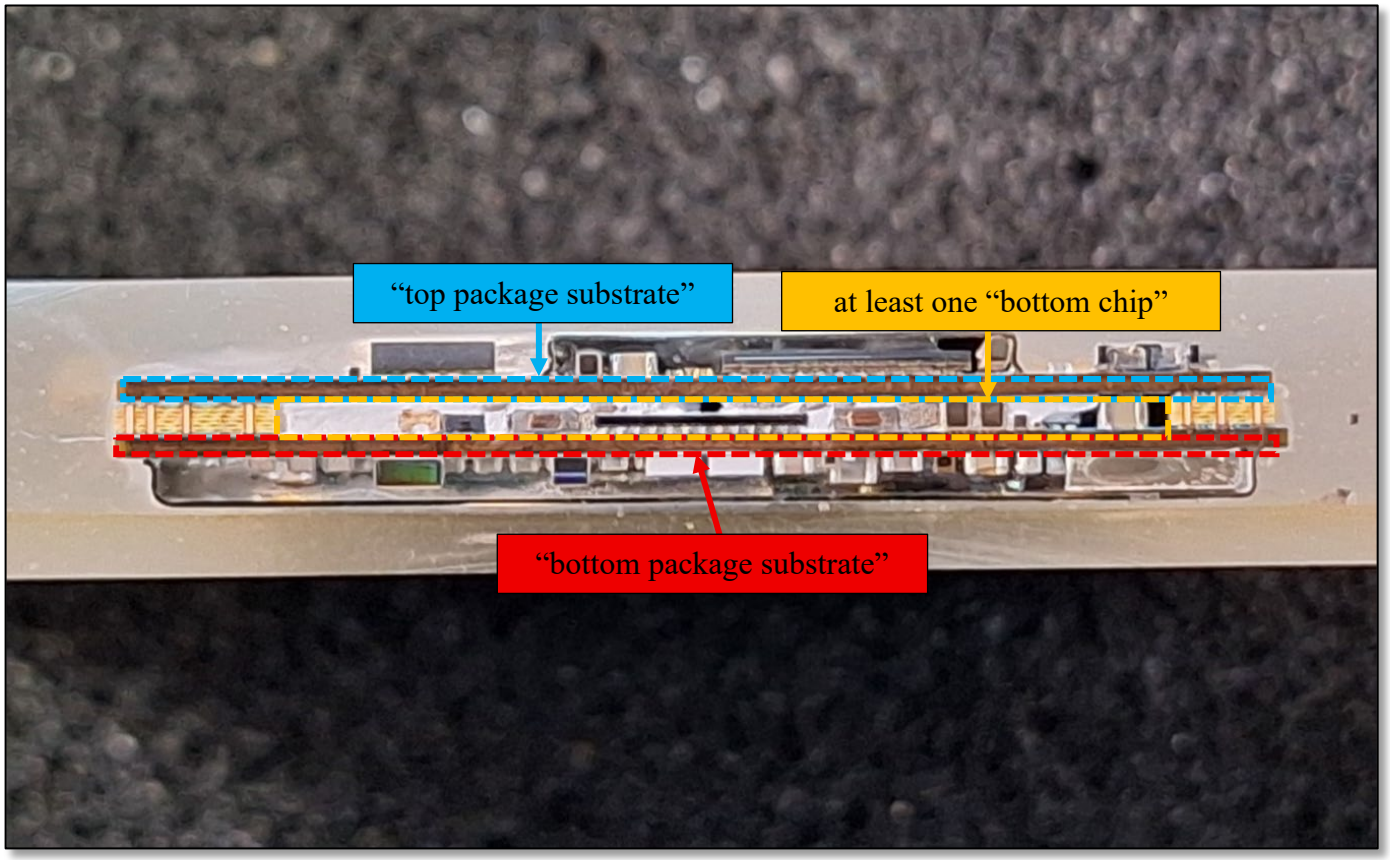
'202 Claim 1	Elements in Accused Smartphones
[1e] the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate has a bottom surface. Additionally, a plurality of bottom metal pillars, such as tin metal pillars or any other suitable bottom metal pillars, are connected to the bottom surface of the top package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the top package substrate of the Samsung Galaxy S23 has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

'202 Claim 1	Elements in Accused Smartphones
[1f] the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom package substrate of Samsung's Accused Smartphones has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom package substrate has a top surface. Additionally, a plurality of top metal pillars, such as tin metal pillars or any other suitable top metal pillars, are connected to the top surface of the bottom package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the bottom package substrate of the Samsung Galaxy S23 has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

'202 Claim 1	Elements in Accused Smartphones
[1g] the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate is electrically coupled to the bottom package substrate. Additionally, current flows between the top package substrate and the bottom package substrate via the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate, all of which are electrically coupled together. For example, the top package substrate of the Samsung Galaxy S23 is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate: 

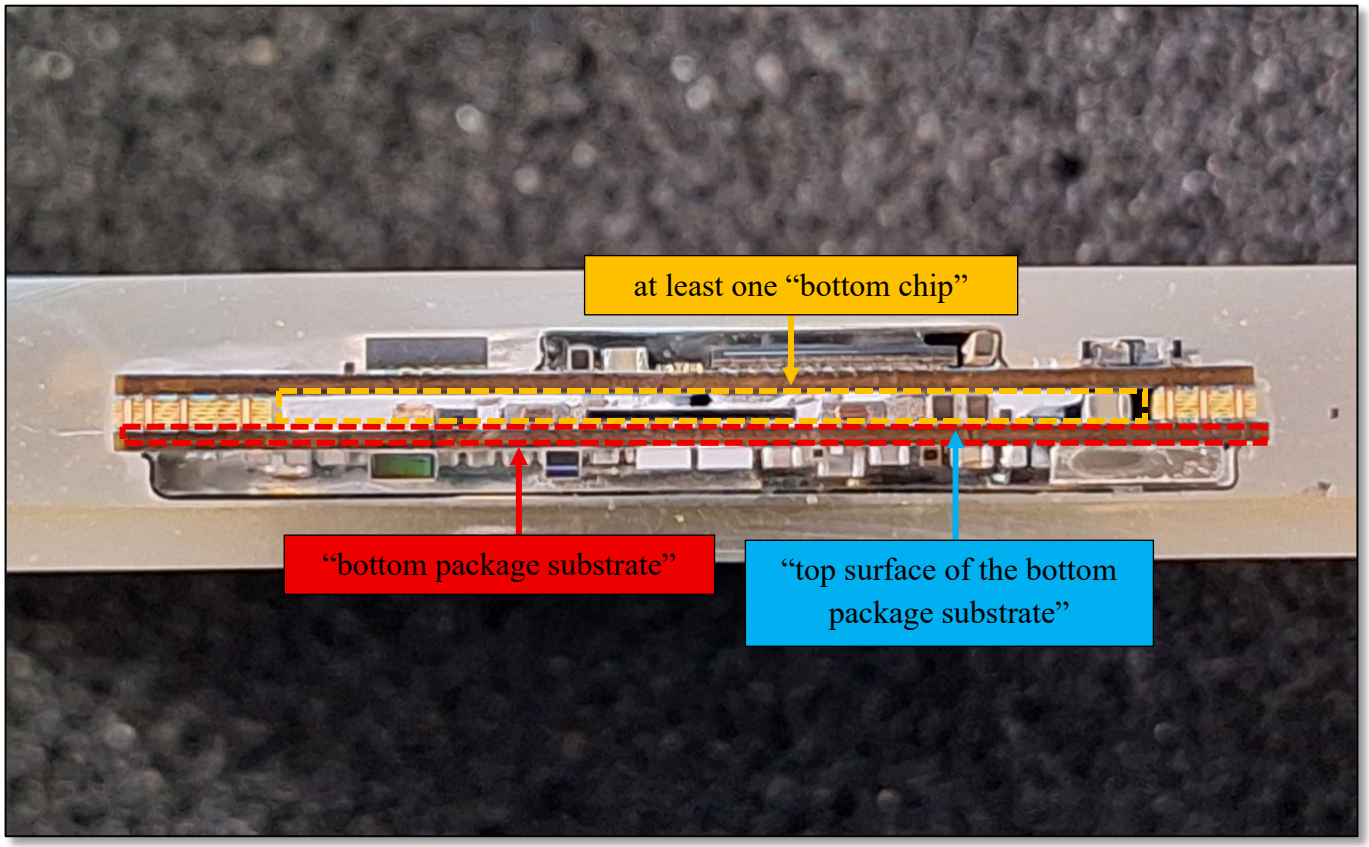
"the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate; and"

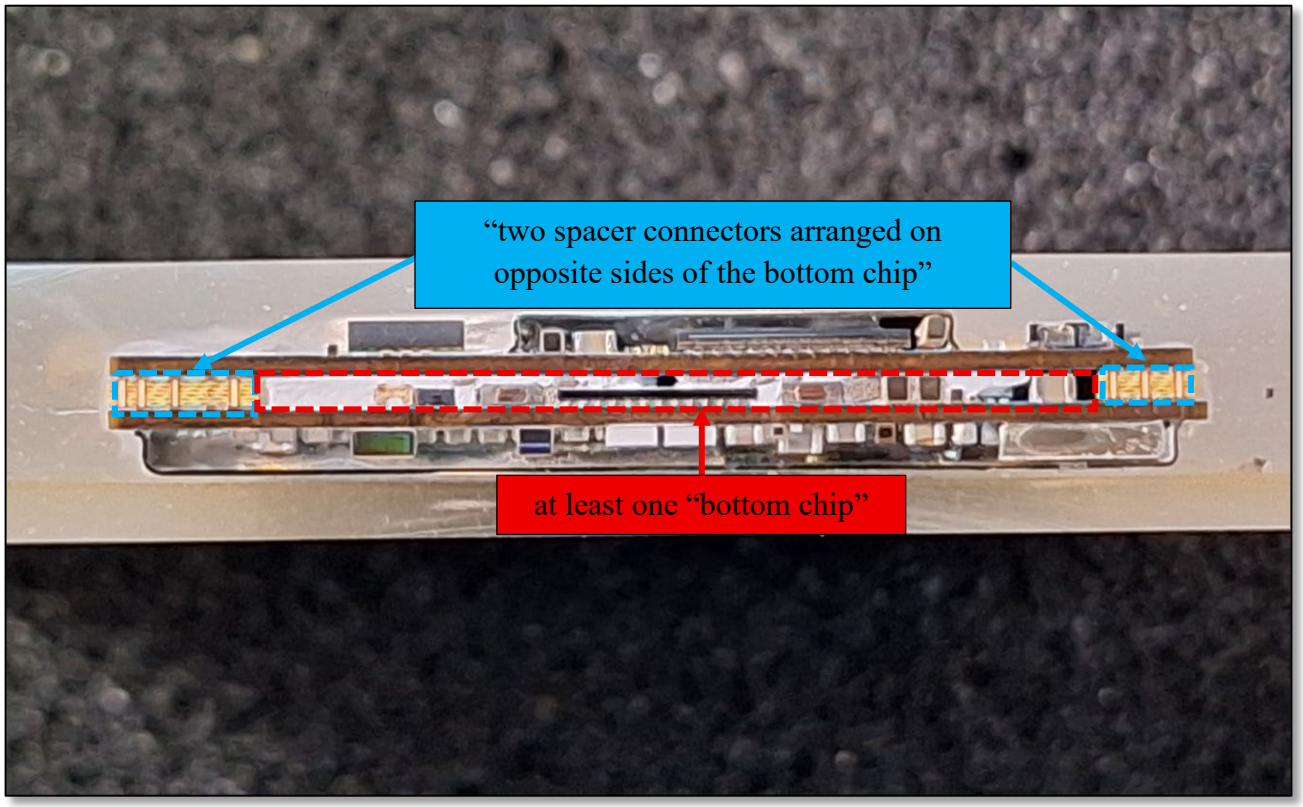
'202 Claim 1	Elements in Accused Smartphones
	(scanning electron microscope ("SEM") view showing the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1h] a bottom chip arranged in the space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, arranged between the space between the bottom package substrate and the top package substrate formed by the at least one spacer connector. For example, the Samsung Galaxy S23 comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate: 

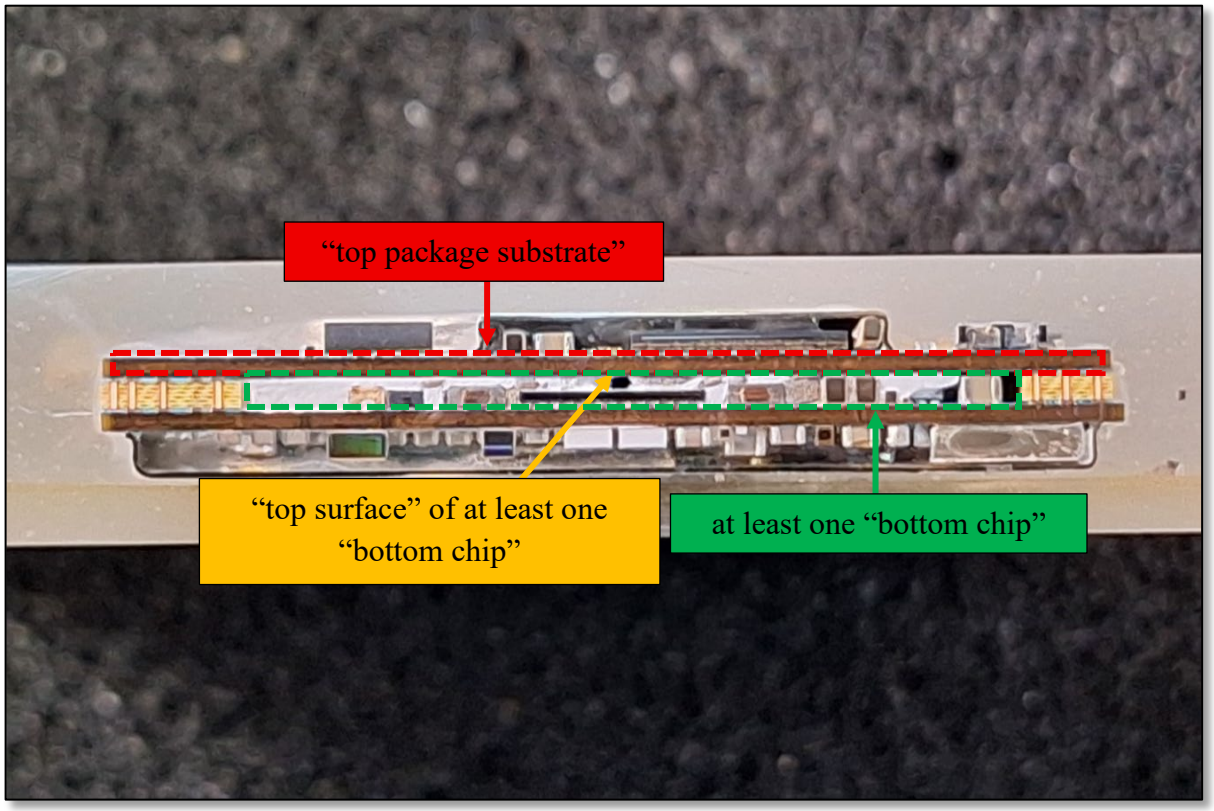
'202 Claim 1	Elements in Accused Smartphones
	(optical view showing the bottom chip arranged in the space between the bottom package substrate and the top package substrate)

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'202 Claim 1	Elements in Accused Smartphones
[1i] the bottom chip is mounted to the top surface of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged mounted to the top surface of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, mounted to the top surface of the bottom package substrate. For example, the bottom chip of the Samsung Galaxy S23 is mounted to the top surface of the bottom package substrate:  (optical view showing the bottom chip mounted to the top surface of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1j] the at least one spacer connector comprises two spacer connectors arranged on opposite sides of the bottom chip.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises two spacer connectors arranged on opposite sides of the bottom chip. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the at least one spacer connector includes two spacer connectors arranged on opposite sides of the bottom chip. For example, the at least one spacer connector of the Samsung Galaxy S23 comprises two spacer connectors arranged on opposite sides of the bottom chip:  (optical view showing the at least one spacer connector comprising two spacer connectors arranged on opposite sides of the bottom chip)

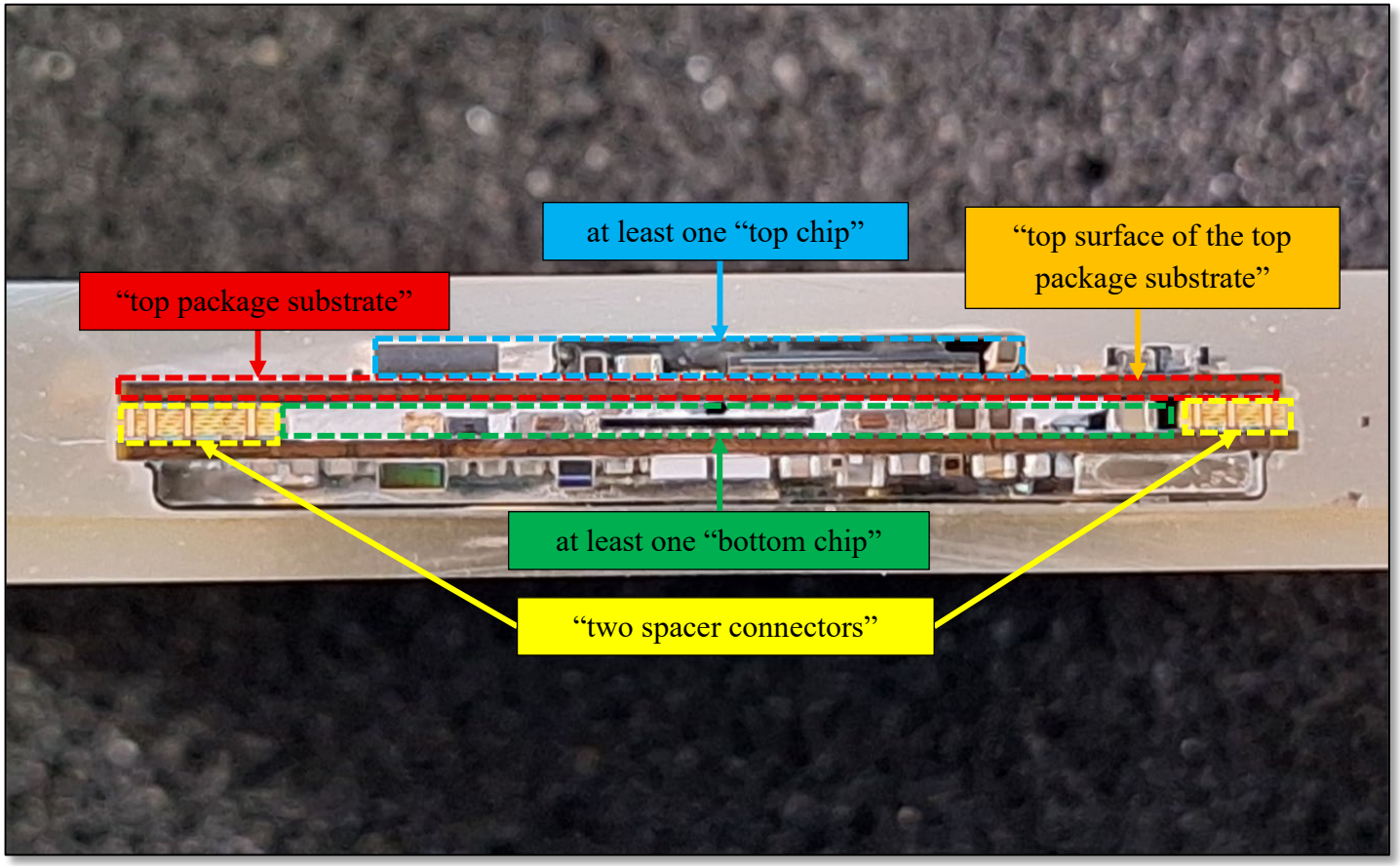
"2. The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate."

'202 Claim 2	Elements in Accused Smartphones
[2] The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom chip of Samsung's Accused Smartphones has a top surface that is spaced downwardly from the bottom surface of the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom chip has a top surface that is spaced downwardly from the bottom surface of the top package substrate. For example, in the Samsung Galaxy S23, a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate:  (optical view showing the top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate)

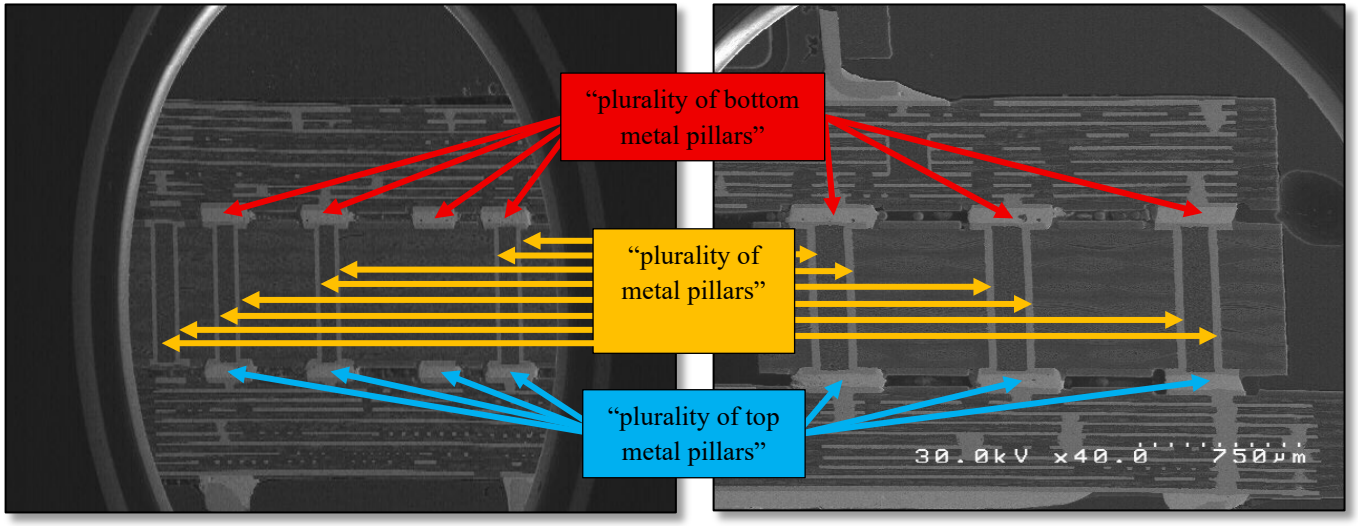
"3. The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors."

'202 Claim 3	Elements in Accused Smartphones
[3] The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors.	TopWire incorporates the disclosures set forth for Claims 1 and 2 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top chip, such as a memory chip or any other suitable top chip, mounted to the top surface of the top package substrate. The top package substrate is stacked on top of the bottom package substrate such that the top chip overlaps the bottom chip and each of the two spacer connectors. For example, the Samsung Galaxy S23 comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors:

"3. The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors."

'202 Claim 3	Elements in Accused Smartphones
	 (optical view showing the top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors)

"4. The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate."

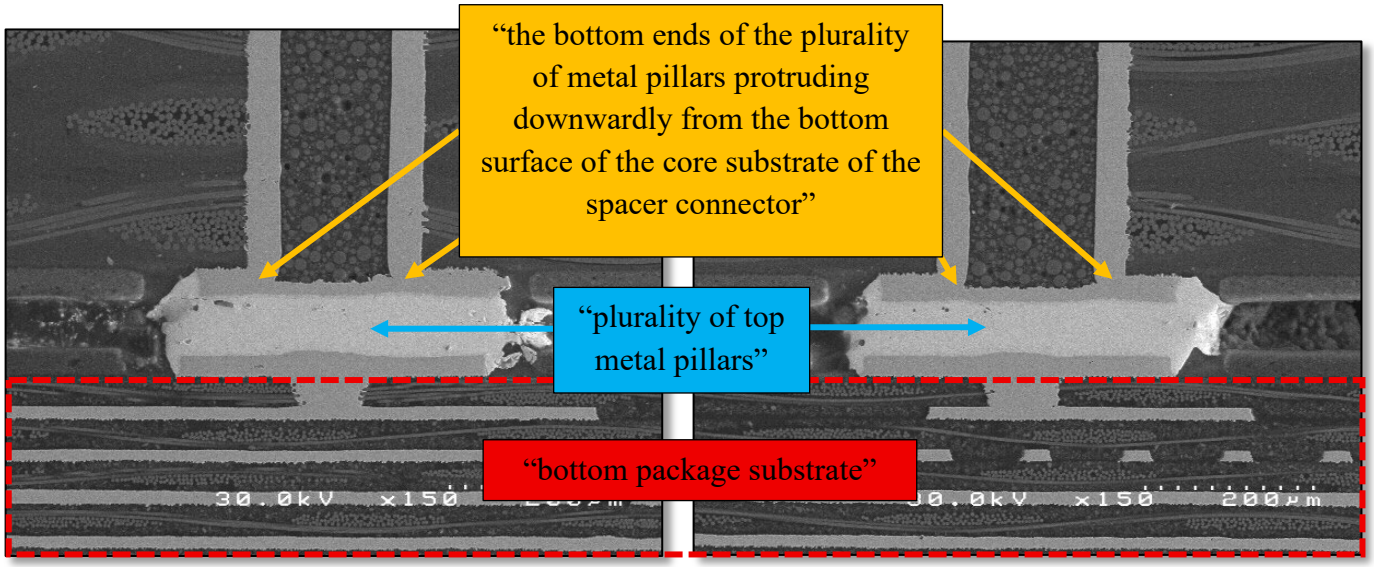
'202 Claim 4	Elements in Accused Smartphones
[4] The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. Each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned (*e.g.*, vertically aligned) with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. For example, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy S23 is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate:  (scanning electron microscope ("SEM") view showing each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate)

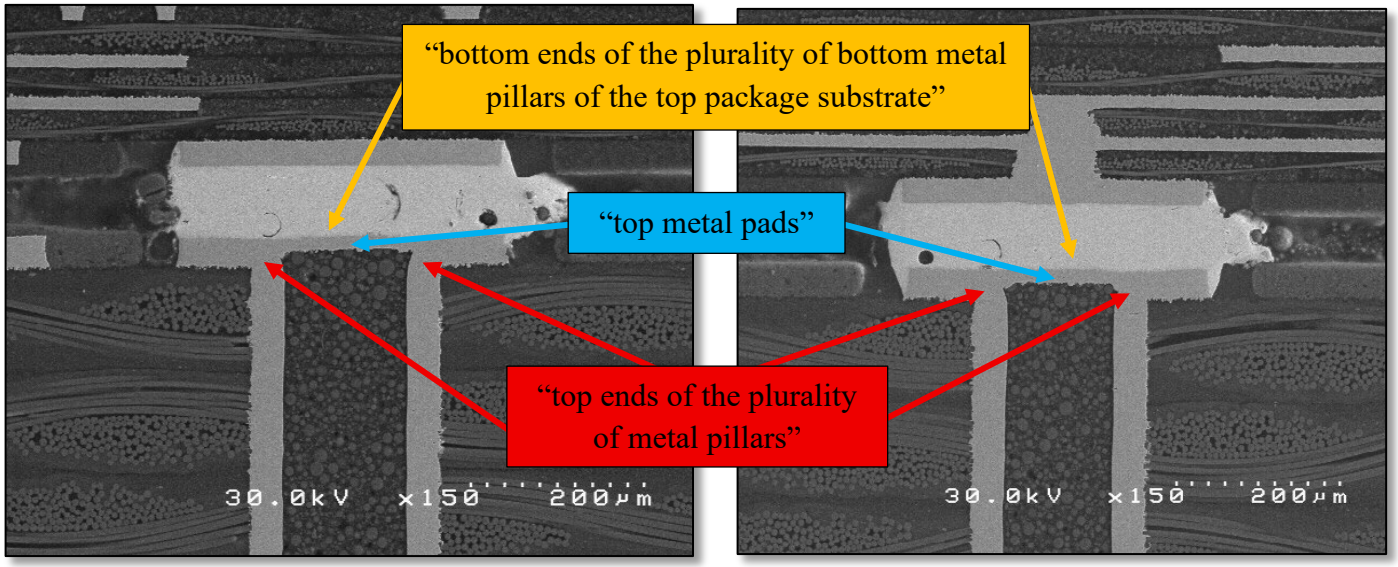
"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
[6a] The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in Samsung's Accused Smartphones are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector. The plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. For example, the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in the Samsung Galaxy S23 are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate:

Exhibit D – U.S. Patent No. 9,859,202 (Accused Smartphones)

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate)

'202 Claim 6	Elements in Accused Smartphones
[**6b**] bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector.	TopWire incorporates the disclosures set forth for Claims 1, 4, and 6 as if set forth herein. The bottom ends of the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the bottom ends of the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy S23 are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:  (scanning electron microscope ("SEM") view showing bottom ends of the plurality of bottom metal pillars of the top package substrate that are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

'202 Claim 9	Elements in Accused Smartphones
[9] The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The spacer connector in Samsung's Accused Smartphones further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a spacer connector. The spacer connector further includes a plurality of bottom metal pads, such as copper metal pads or any other suitable bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars. The bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the spacer connector in the Samsung Galaxy S23 further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

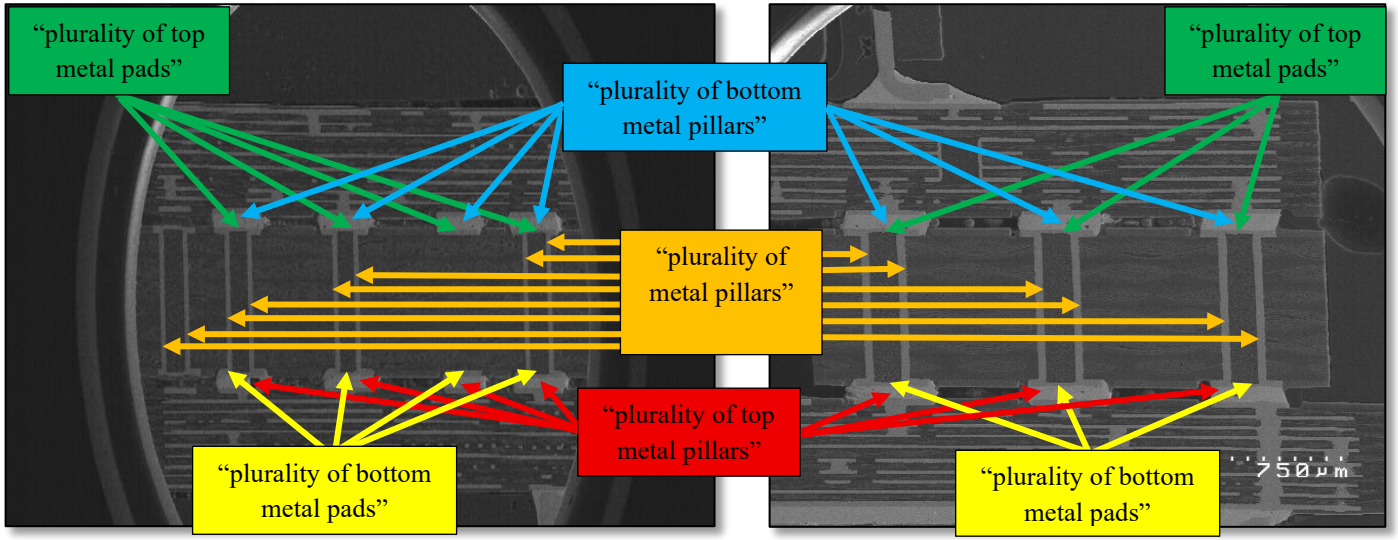
'202 Claim 9	Elements in Accused Smartphones
the corresponding top metal pads of the spacer connector.	 (scanning electron microscope ("SEM") view showing the spacer connector further comprising a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars being connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate being connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

EXHIBIT E

Exhibit E – U.S. Patent No. 9,859,202 (Accused Smartphones)
"1. A structure, comprising:"

'202 Claim 1	Elements in Accused Smartphones
[1-pre] A structure, comprising:	To the extent the preamble is limiting, Samsung's Accused Smartphones[1] comprise a structure. *E.g.*, Samsung's Accused Smartphones incorporate structures, such as motherboards (sometimes also referred to as "logic boards"). The motherboards in Samsung's Accused Smartphones contain integrated circuits (sometimes also referred to as "chips"). The motherboard performs many core functions of Samsung's Accused Smartphones. (showing the specification of a Samsung Galaxy S23 Ultra). *See* GSMARENA, *Specifications*, available at https://www.gsmarena.com/samsung_galaxy_S23 Ultra-12024.php (last visited February 9, 2026).

NETWORK	Technology	GSM / CDMA / HSPA / EVDO / LTE / 5G
LAUNCH	Announced	2023, February 01
	Status	Available. Released 2023, February 17
BODY	Dimensions	163.4 x 78.1 x 8.9 mm (6.43 x 3.07 x 0.35 in)
	Weight	234 g (8.25 oz)
	Build	Glass front (Gorilla Glass Victus 2), glass back (Gorilla Glass Victus 2), aluminum frame
	SIM	· Nano-SIM + eSIM · Nano-SIM + Nano-SIM + eSIM (max 2 at a time)
		IP68 dust tight and water resistant (immersible up to 1.5m for 30 min)
		Armor aluminum frame
		Stylus (Bluetooth integration, accelerometer, gyro)
DISPLAY	Type	Dynamic AMOLED 2X, 120Hz, HDR10+, 1200 nits (HBM), 1750 nits (peak)
	Size	6.8 inches, 114.7 cm^2 (~89.9% screen-to-body ratio)
	Resolution	1440 x 3088 pixels, 19.3:9 ratio (~500 ppi density)
	Protection	Corning Gorilla Glass Victus 2
PLATFORM	OS	Android 13, up to 4 major Android upgrades, One UI 8
	Chipset	Qualcomm SM8550-AC Snapdragon 8 Gen 2 (4 nm)
	CPU	Octa-core (1x3.36 GHz Cortex-X3 & 2x2.8 GHz Cortex-A715 & 2x2.8 GHz Cortex-A710 & 3x2.0 GHz Cortex-A510)
	GPU	Adreno 740
MEMORY	Card slot	No
	Internal	256GB 8GB RAM, 256GB 12GB RAM, 512GB 12GB RAM, 1TB 12GB RAM
		UFS 4.0
MAIN CAMERA	Quad	200 MP, f/1.7, 24mm (wide), 1/1.3", 0.6µm, multi-directional PDAF, OIS
		10 MP, f/2.4, 70mm (telephoto), 1/3.52", 1.12µm, PDAF, OIS, 3x optical zoom
		10 MP, f/4.9, 230mm (periscope telephoto), 1/3.52", 1.12µm, PDAF, OIS, 10x optical zoom
		12 MP, f/2.2, 13mm, 120° (ultrawide), 1/2.55", 1.4µm, dual pixel PDAF, Super Steady video
	Features	Laser AF, LED flash, auto-HDR, panorama
	Video	8K@24/30fps, 4K@30/60fps, 1080p@30/60/120/240fps, HDR10+, stereo sound rec., gyro-EIS
SELFIE CAMERA	Single	12 MP, f/2.2, 26mm (wide), 1/3.2", 1.12µm, dual pixel PDAF
	Features	HDR, HDR10+
	Video	4K@30/60fps, 1080p@30fps
SOUND	Loudspeaker	Yes, with stereo speakers
	3.5mm jack	No
		High-bitrate audio support
COMMS	WLAN	Wi-Fi 802.11 a/b/g/n/ac/6e, tri-band, Wi-Fi Direct
	Bluetooth	5.3, A2DP, LE
	Positioning	GPS, GALILEO, GLONASS, BDS, QZSS
	NFC	Yes
	Radio	No
	USB	USB Type-C 3.2, OTG
FEATURES	Sensors	Fingerprint (under display, ultrasonic), accelerometer, gyro, proximity, compass, barometer
		Samsung DeX, Samsung Wireless DeX (desktop experience support)
		Ultra Wideband (UWB) support
BATTERY	Type	Li-Ion 5000 mAh
	Charging	45W wired, PD3.0, 65% in 30 min
		15W wireless (Qi)
		4.5W reverse wireless

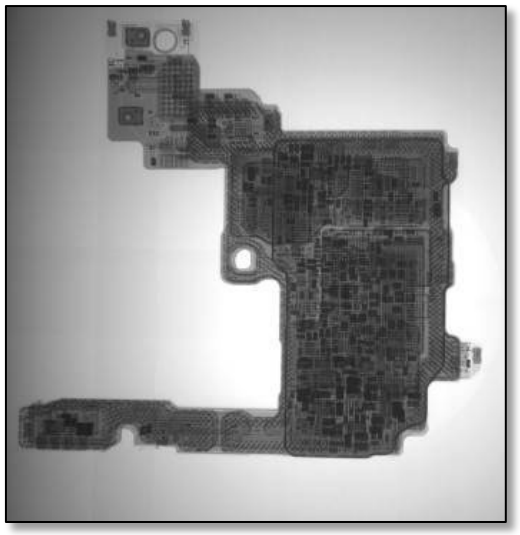
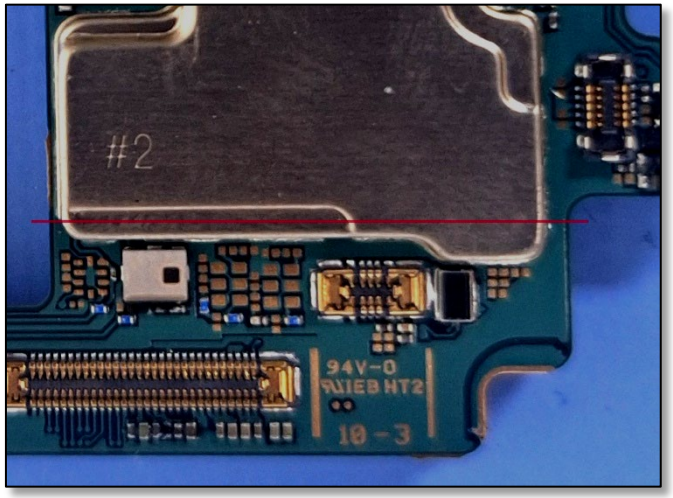
[1] The term Accused Smartphones is defined as those smartphone products accused of infringement in the cover pleading of these contentions, and those further identified during discovery.

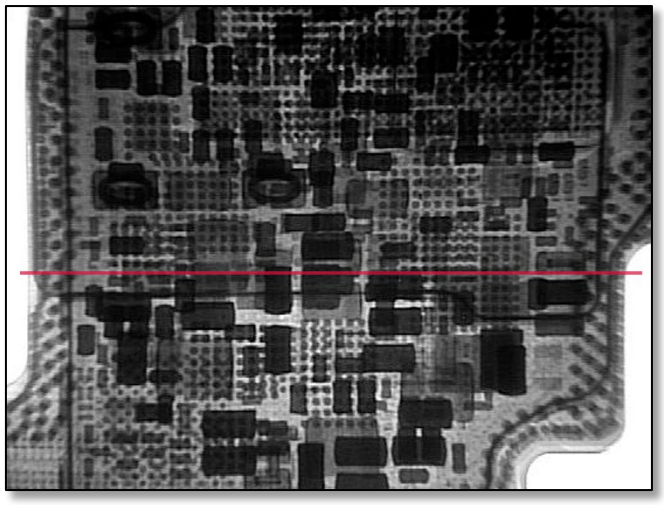
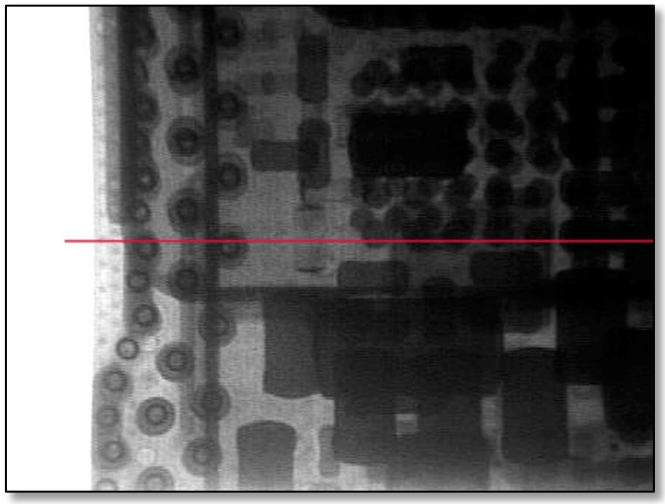
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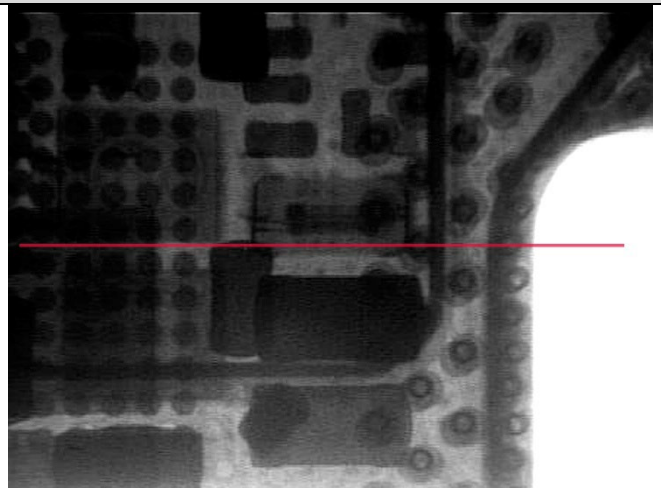
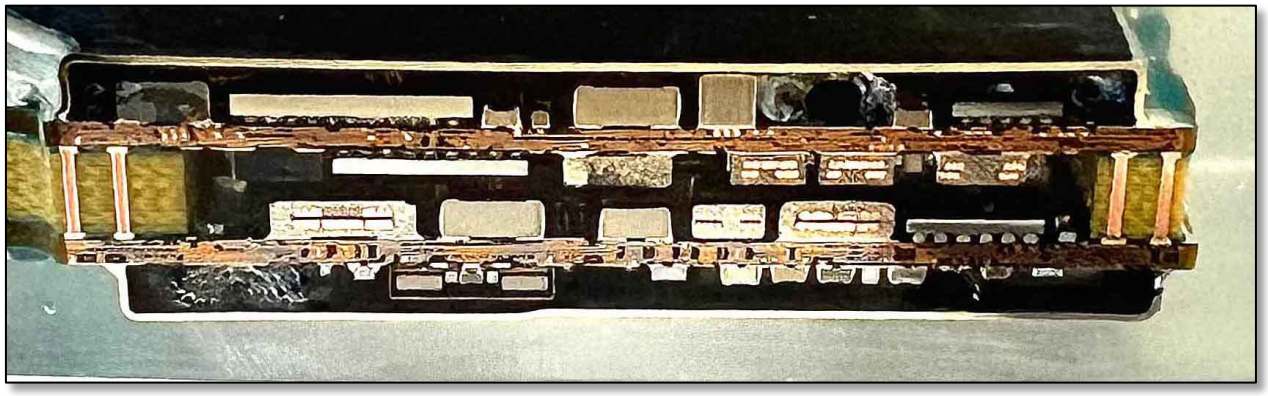
'202 Claim 1	Elements in Accused Smartphones
	 (showing a bottom-side view of a Samsung Galaxy S23 Ultra)  (showing a disassembled Samsung Galaxy S23 Ultra)

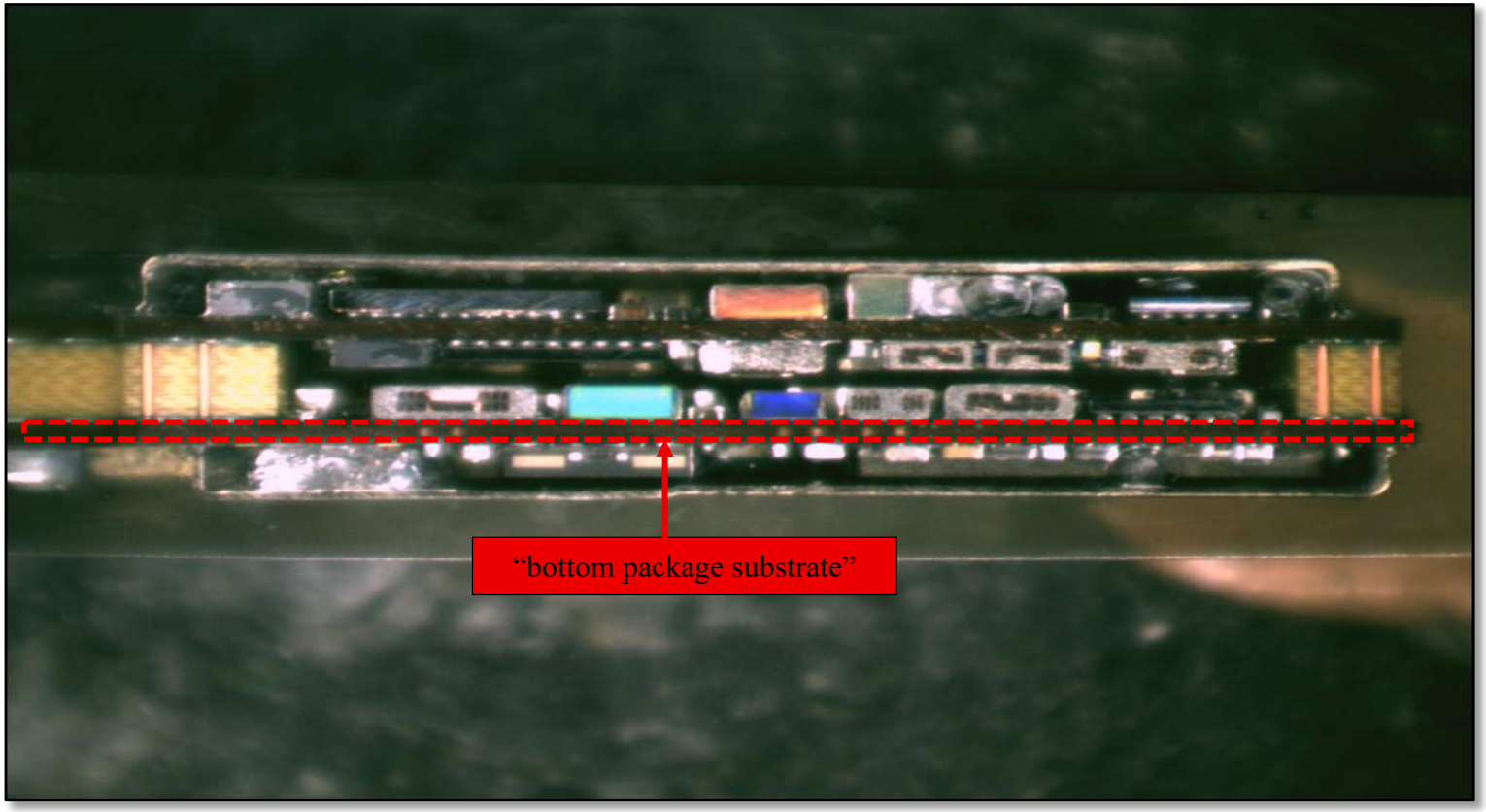
'202 Claim 1	Elements in Accused Smartphones
	For example, the Samsung Galaxy S23 Ultra comprises a bottom package substrate:  (showing a top-side view of a motherboard in a Samsung Galaxy S23 Ultra)  (showing top-side view of a motherboard in a Samsung Galaxy S23 Ultra)

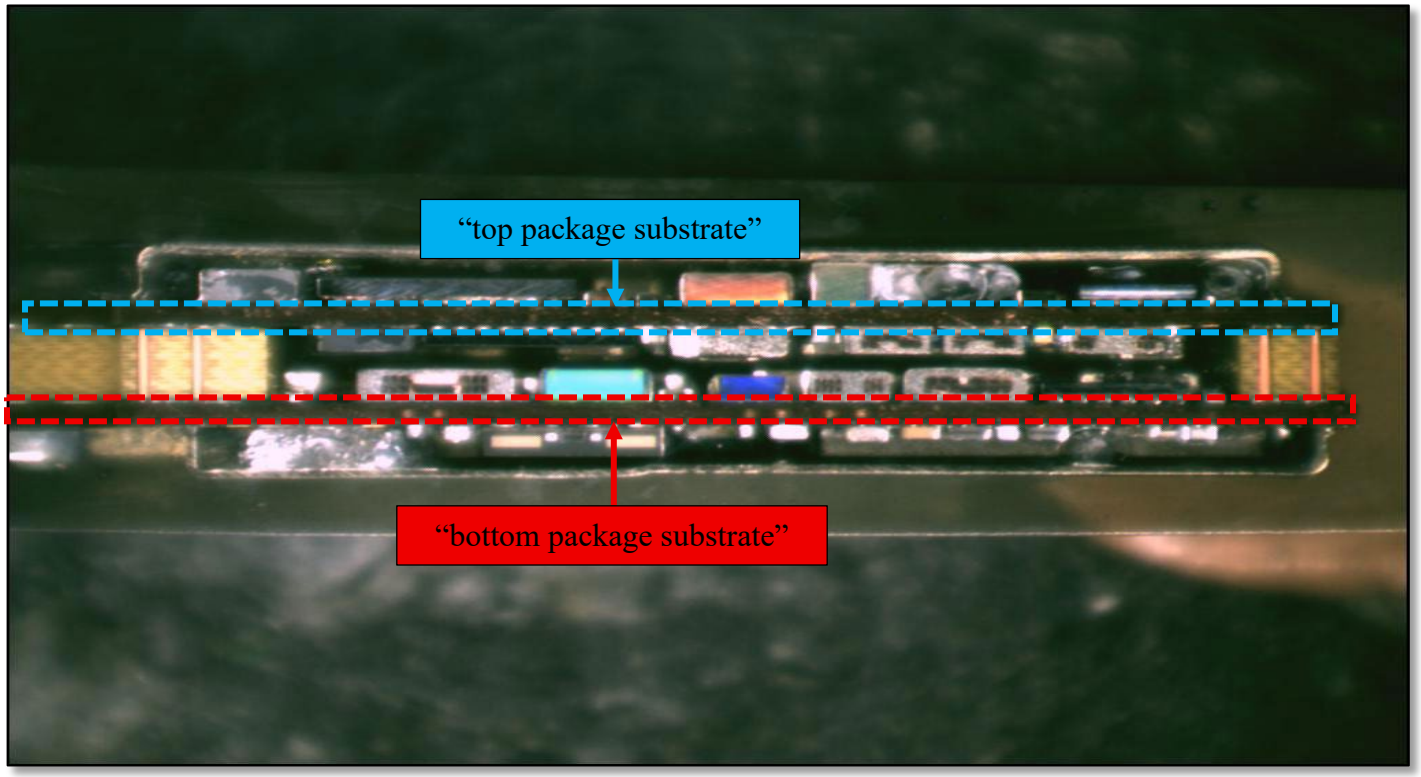
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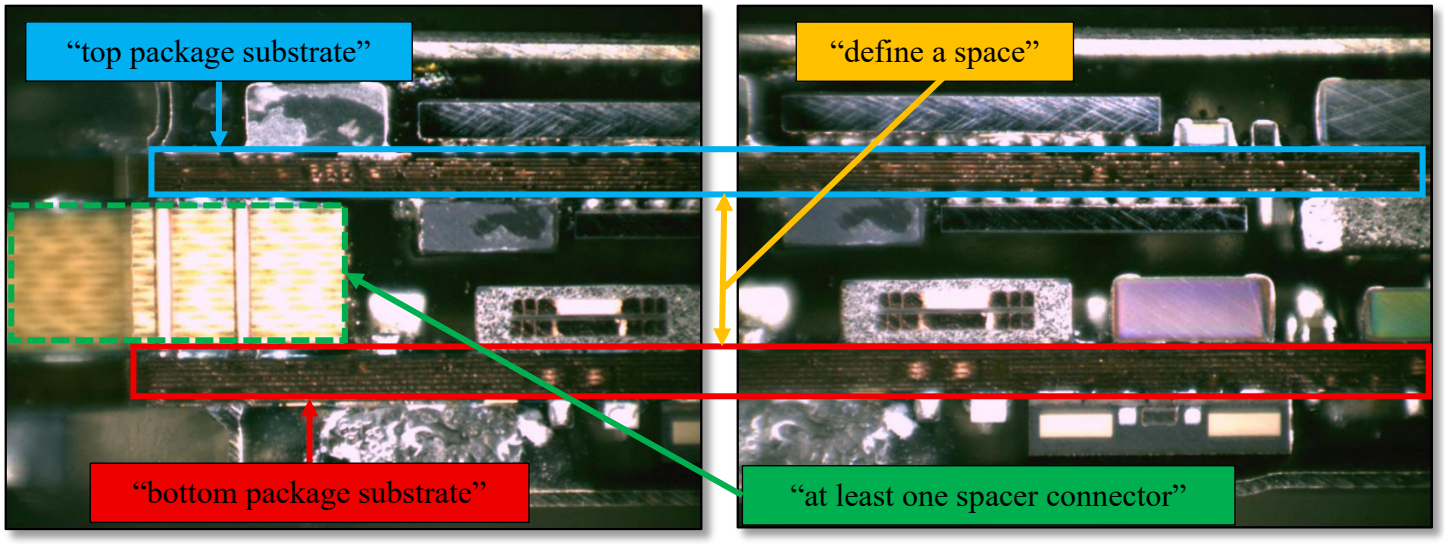
'202 Claim 1	Elements in Accused Smartphones
	 (showing an x-ray image of a logic motherboard in a Samsung Galaxy S23 Ultra)  (showing a top-side view of a motherboard with a red cross-section area in a Samsung Galaxy S23 Ultra)

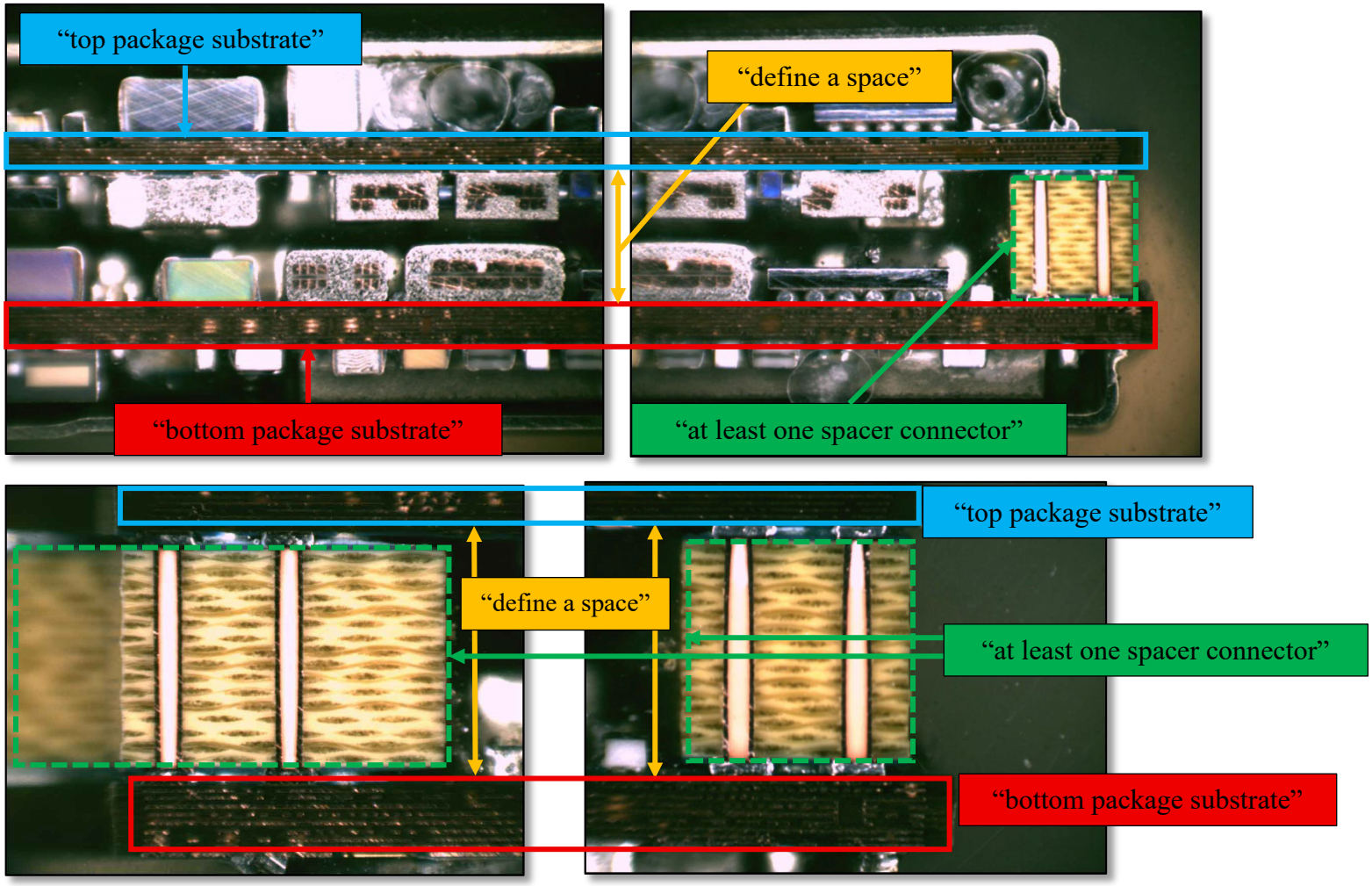
'202 Claim 1	Elements in Accused Smartphones
	 (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S23 Ultra)  (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S23 Ultra)

'202 Claim 1	Elements in Accused Smartphones
	 (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S23 Ultra)  (optical view showing a cross-section view of a motherboard in a Samsung Galaxy S23 Ultra)

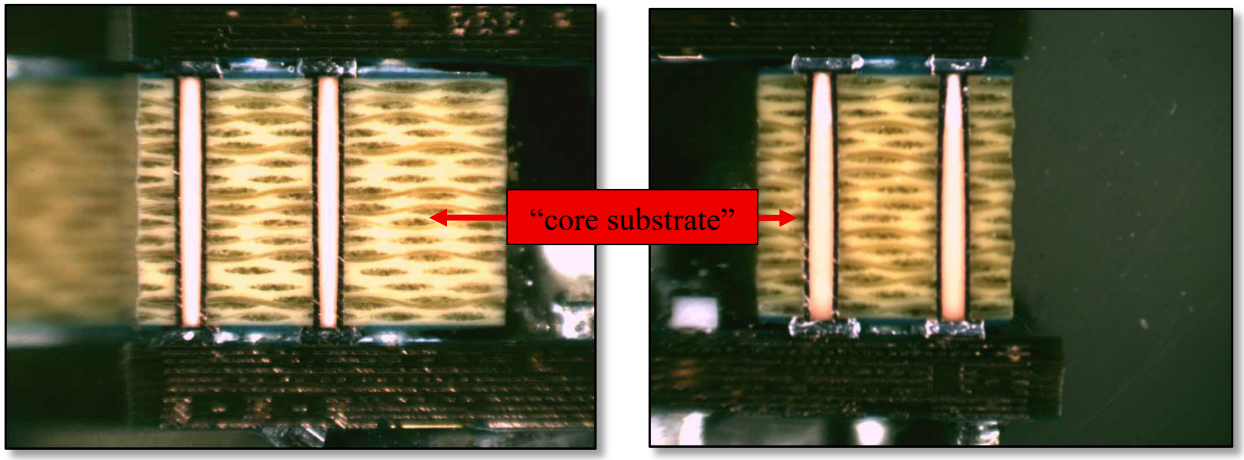
'202 Claim 1	Elements in Accused Smartphones
[1a] a bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate. For example, the Samsung Galaxy S23 Ultra comprises a bottom package substrate:  (optical view showing a bottom package substrate)

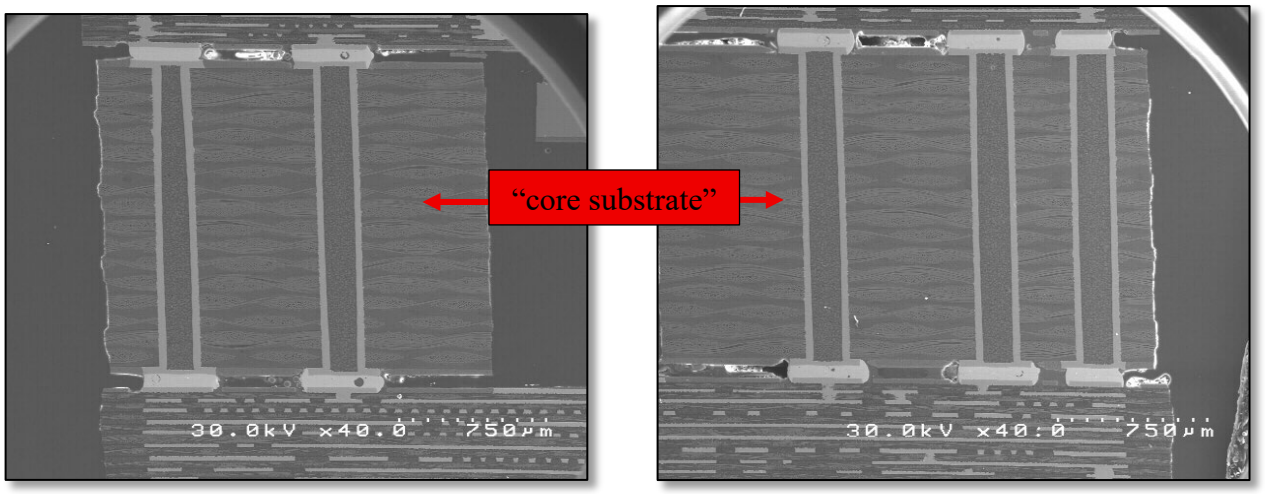
'202 Claim 1	Elements in Accused Smartphones
[1b] a top package substrate stacked on top of the bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top package substrate stacked on top of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate, stacked on top of the bottom package substrate. For example, the Samsung Galaxy S23 Ultra comprises a top package substrate stacked on top of the bottom package substrate:  (optical view showing a top package substrate stacked on top of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1c] at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector, such as a metallic structure or any other suitable spacer connector. The at least one spacer connector is interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. Therefore, the at least one spacer connector separates the top package substrate from the bottom package substrate. For example, the Samsung Galaxy S23 Ultra comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate: 

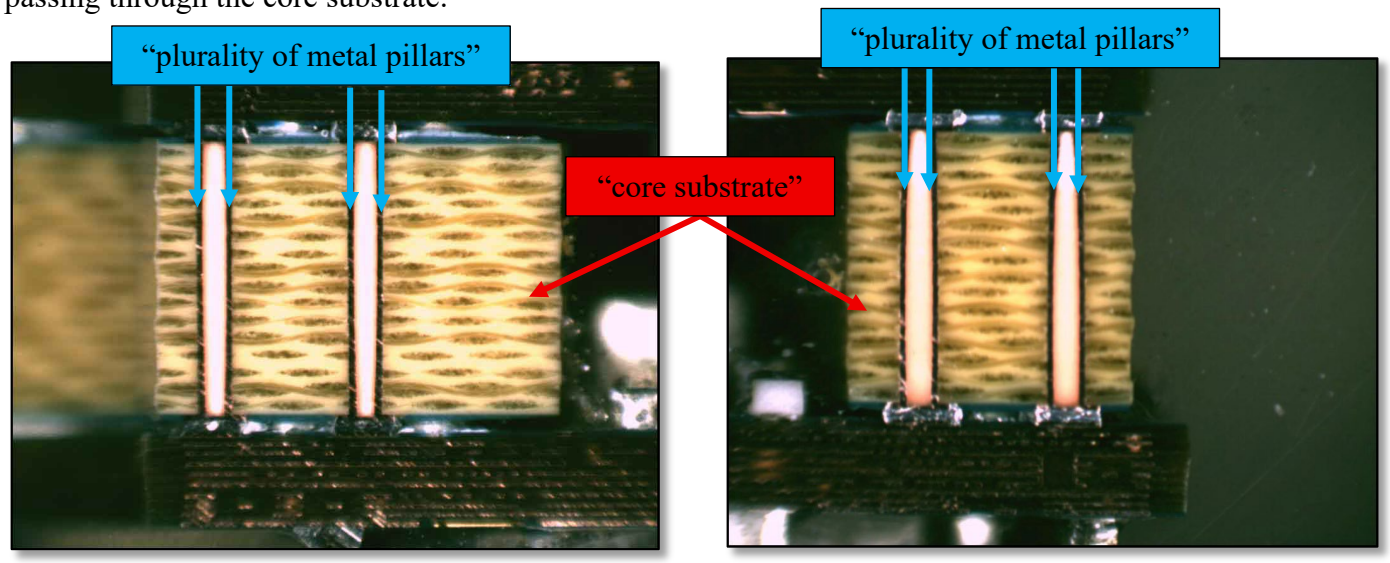
'202 Claim 1	Elements in Accused Smartphones
	 (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

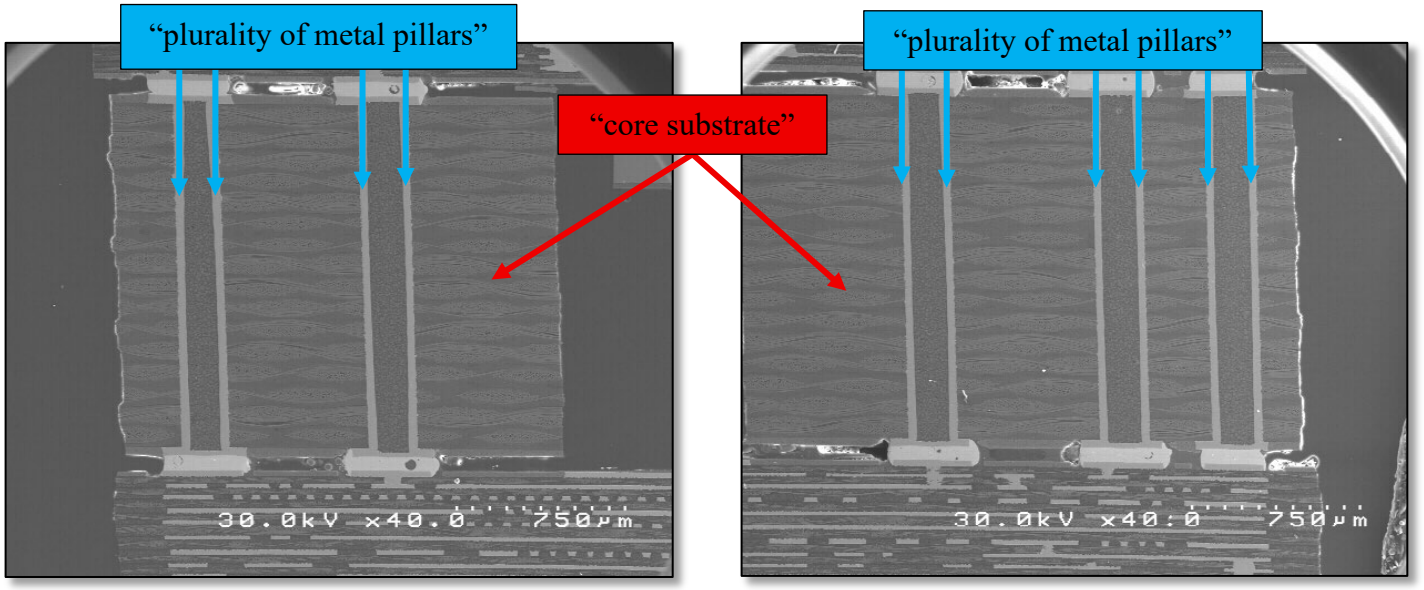
'202 Claim 1	Elements in Accused Smartphones
[1d-pre] wherein the spacer connector comprises:	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. See below.

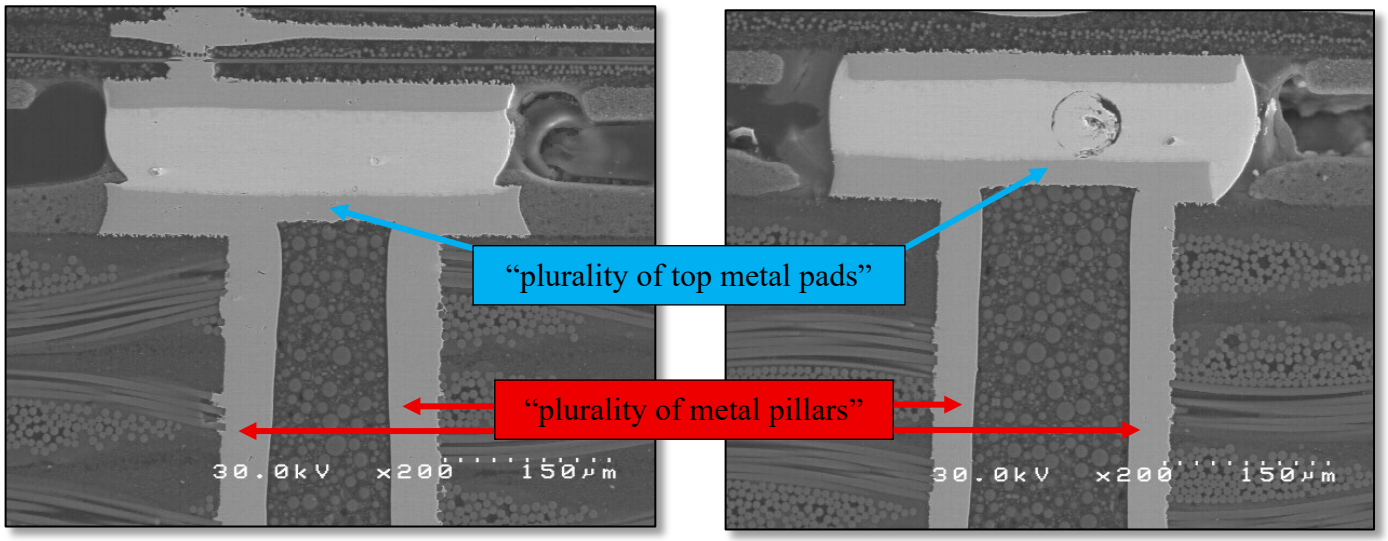
'202 Claim 1	Elements in Accused Smartphones
[1d-1] a core substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a core substrate. E.g., The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a core substrate, such as a silicon substrate or any other suitable core substrate. For example, the at least one spacer connector of the Samsung Galaxy S23 Ultra comprises a core substrate:  (optical view showing the core substrate)

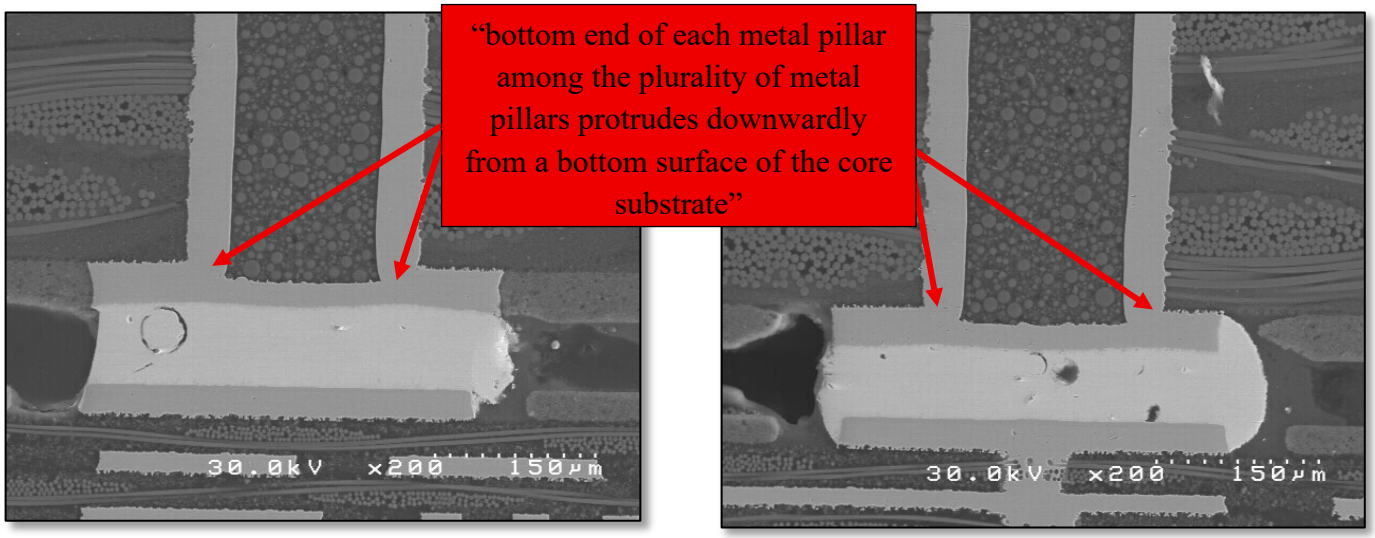
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the core substrate)

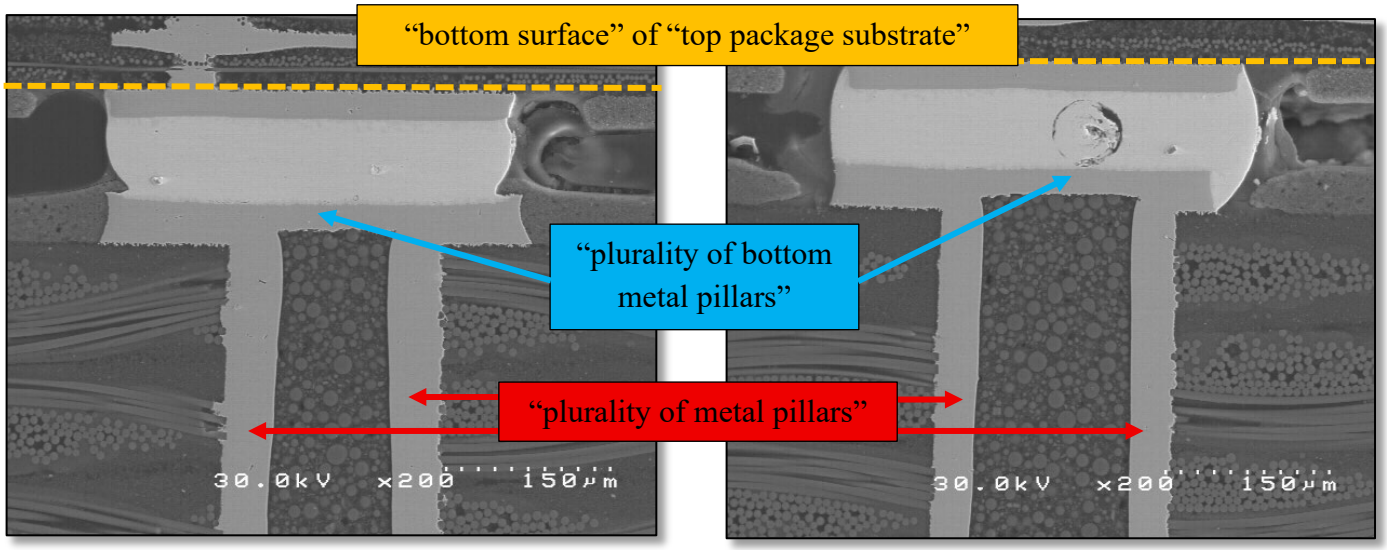
Samsung v. TopWire | IPR2026-00324
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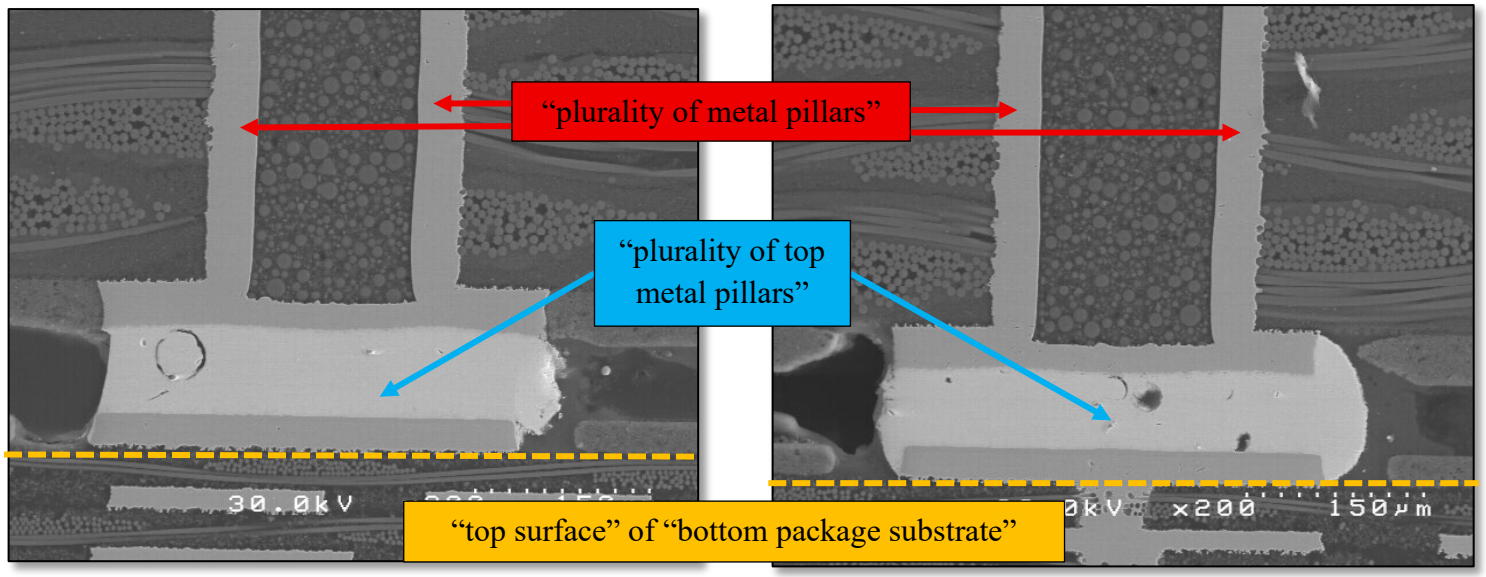
'202 Claim 1	Elements in Accused Smartphones
[1d-2] a plurality of metal pillars, each passing through the core substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of metal pillars, each passing through the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of metal pillars, such as copper pillars or any other suitable metal pillars. Each of the plurality of metal pillars passes through (*e.g.*, intersects) the core substrate. For example, the at least one spacer connector of the Samsung Galaxy S23 Ultra comprises a plurality of metal pillars, each passing through the core substrate:  (optical view showing the plurality of metal pillars, each passing through the core substrate)

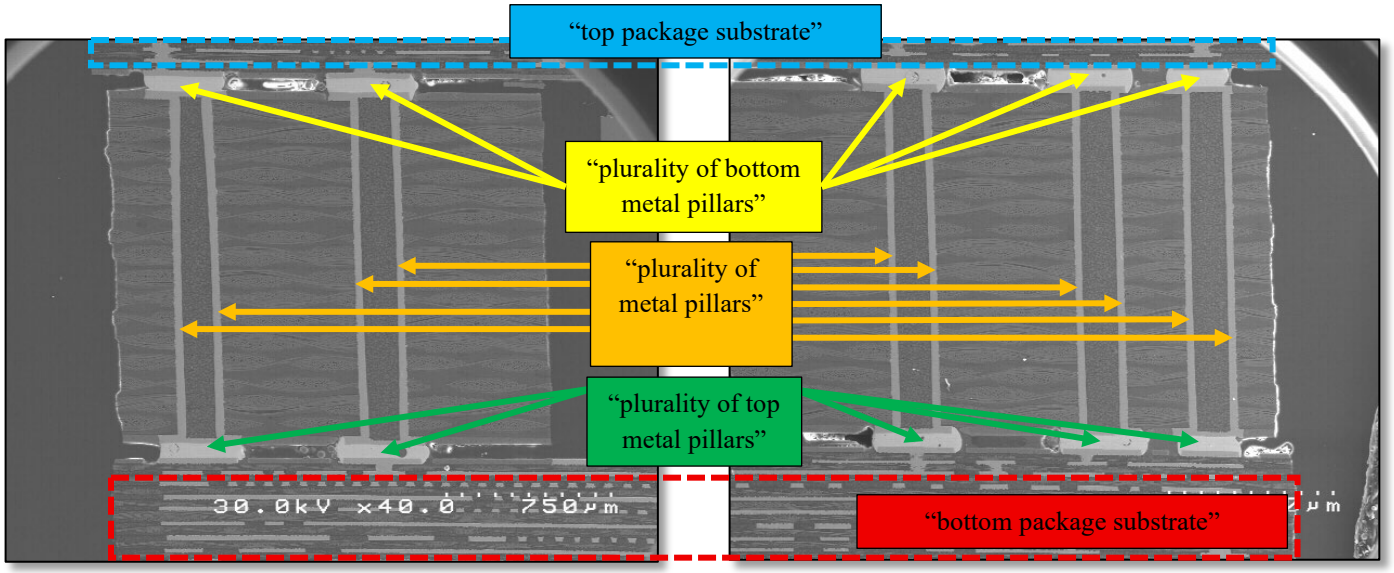
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the plurality of metal pillars, each passing through the core substrate)

'202 Claim 1	Elements in Accused Smartphones
[1d-3] a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of top metal pads, such as copper metal pads or any other suitable metal pads. Each of the plurality of metal pads are connected to a top end of a corresponding metal pillar among the plurality of metal pillars. For example, the at least one spacer connector of the Samsung Galaxy S23 Ultra comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars:  (scanning electron microscope ("SEM") view showing the plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars)

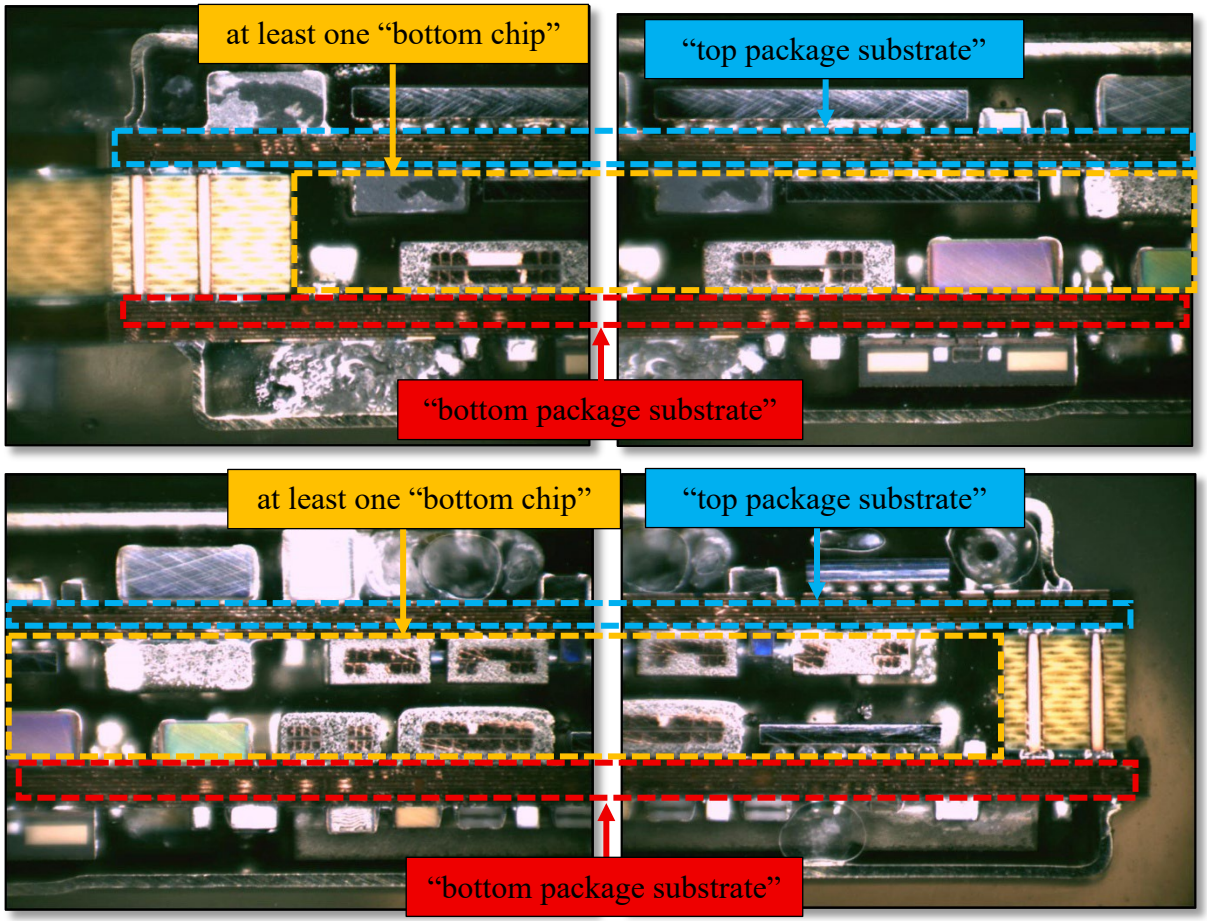
'202 Claim 1	Elements in Accused Smartphones
[1d-4] wherein a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. In the at least one spacer connector of Samsung's Accused Smartphones, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. In the at least one spacer connector, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from (*e.g.*, extends past) a bottom surface of the core substrate. For example, in the at least one spacer connector of the Samsung Galaxy S23 Ultra, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate:  (scanning electron microscope ("SEM") view showing the bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate)

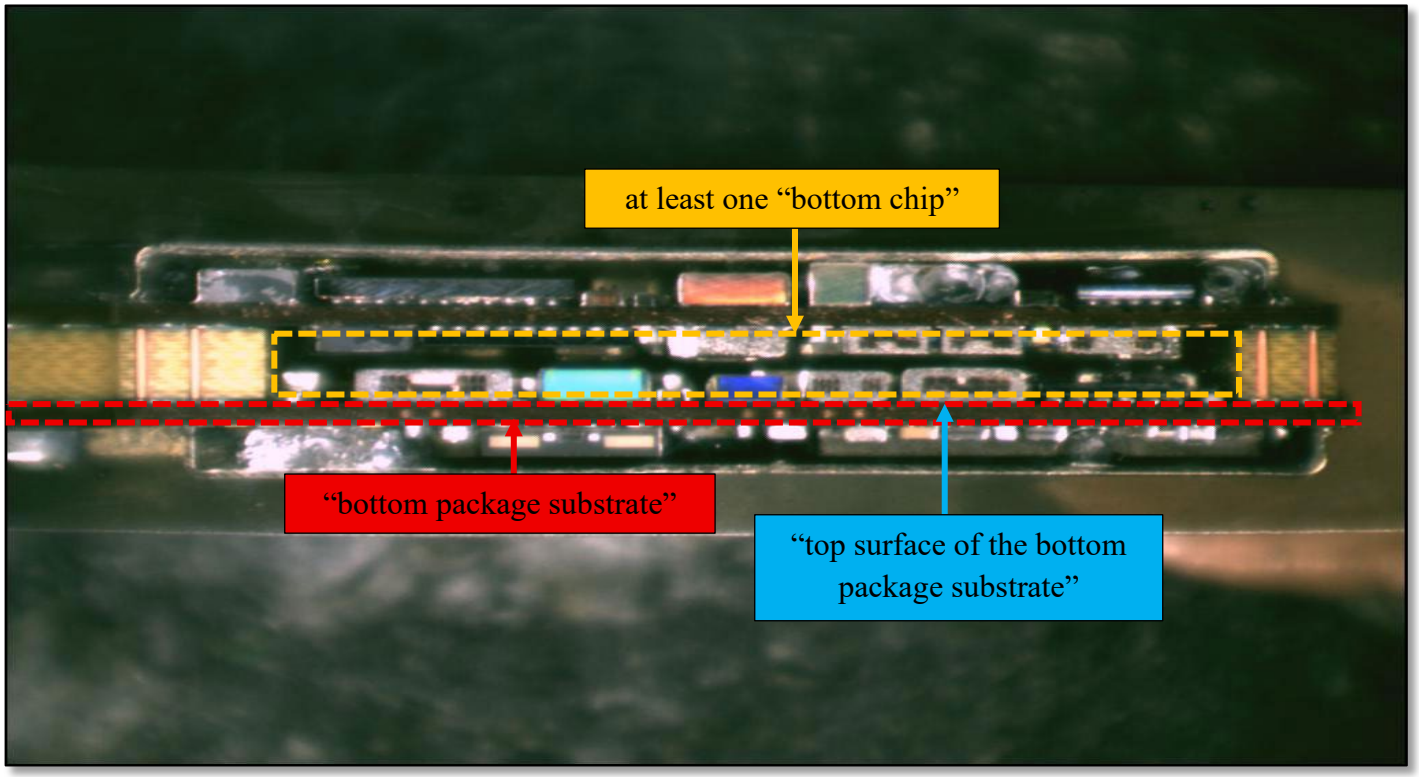
'202 Claim 1	Elements in Accused Smartphones
[1e] the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate has a bottom surface. Additionally, a plurality of bottom metal pillars, such as tin metal pillars or any other suitable bottom metal pillars, are connected to the bottom surface of the top package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the top package substrate of the Samsung Galaxy S23 Ultra has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

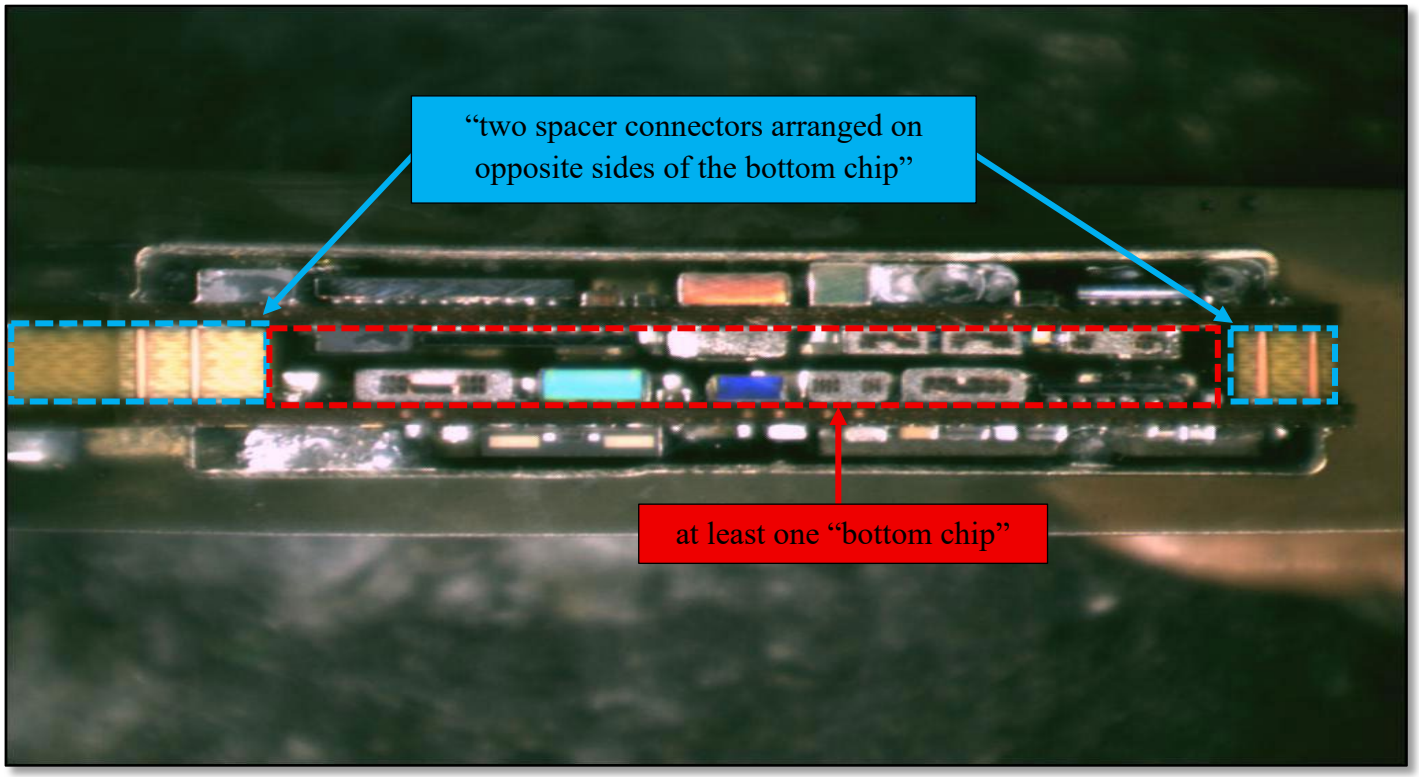
'202 Claim 1	Elements in Accused Smartphones
[1f] the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom package substrate of Samsung's Accused Smartphones has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom package substrate has a top surface. Additionally, a plurality of top metal pillars, such as tin metal pillars or any other suitable top metal pillars, are connected to the top surface of the bottom package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the bottom package substrate of the Samsung Galaxy S23 Ultra has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

'202 Claim 1	Elements in Accused Smartphones
[1g] the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate is electrically coupled to the bottom package substrate. Additionally, current flows between the top package substrate and the bottom package substrate via the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate, all of which are electrically coupled together. For example, the top package substrate of the Samsung Galaxy S23 Ultra is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate:  (scanning electron microscope ("SEM") view showing the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate)

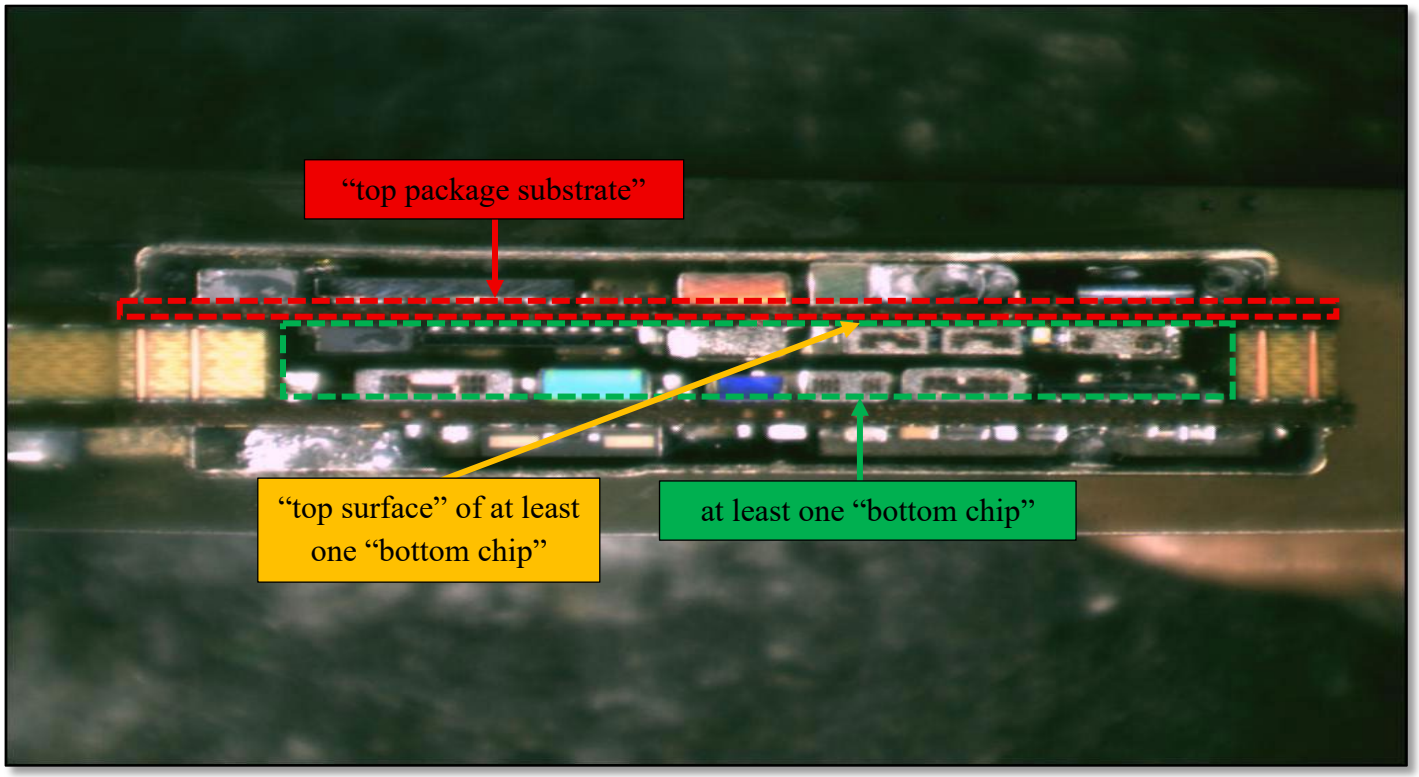
'202 Claim 1	Elements in Accused Smartphones
[1h] a bottom chip arranged in the space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, arranged between the space between the bottom package substrate and the top package substrate formed by the at least one spacer connector. For example, the Samsung Galaxy S23 Ultra comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate:

'202 Claim 1	Elements in Accused Smartphones
	 (optical view showing the bottom chip arranged in the space between the bottom package substrate and the top package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1i] the bottom chip is mounted to the top surface of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged mounted to the top surface of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, mounted to the top surface of the bottom package substrate. For example, the bottom chip of the Samsung Galaxy S23 Ultra is mounted to the top surface of the bottom package substrate:  (optical view showing the bottom chip mounted to the top surface of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1j] the at least one spacer connector comprises two spacer connectors arranged on opposite sides of the bottom chip.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises two spacer connectors arranged on opposite sides of the bottom chip. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the at least one spacer connector includes two spacer connectors arranged on opposite sides of the bottom chip. For example, the at least one spacer connector of the Samsung Galaxy S23 Ultra comprises two spacer connectors arranged on opposite sides of the bottom chip:  (optical view showing the at least one spacer connector comprising two spacer connectors arranged on opposite sides of the bottom chip)

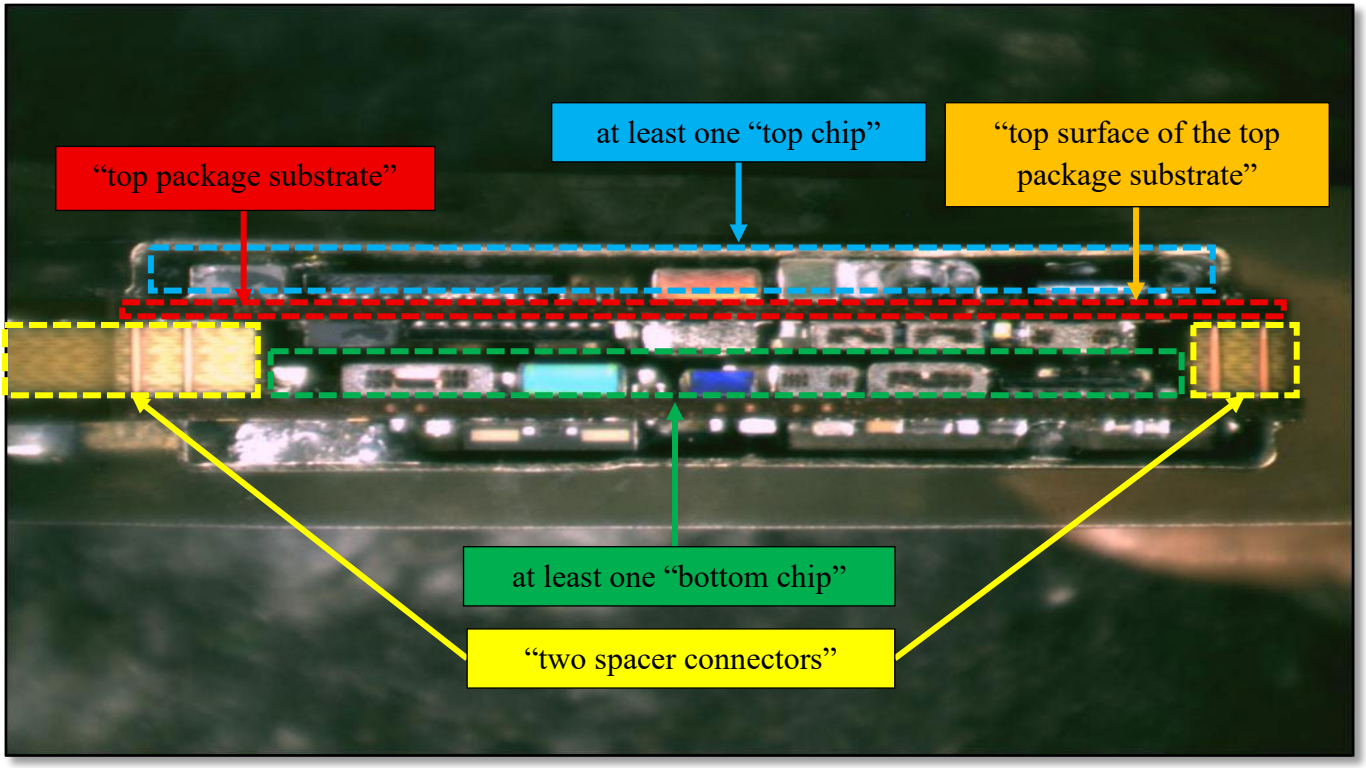
"2. The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate."

'202 Claim 2	Elements in Accused Smartphones
[2] The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom chip of Samsung's Accused Smartphones has a top surface that is spaced downwardly from the bottom surface of the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom chip has a top surface that is spaced downwardly from the bottom surface of the top package substrate. For example, in the Samsung Galaxy S23 Ultra, a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate:  (optical view showing the top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate)

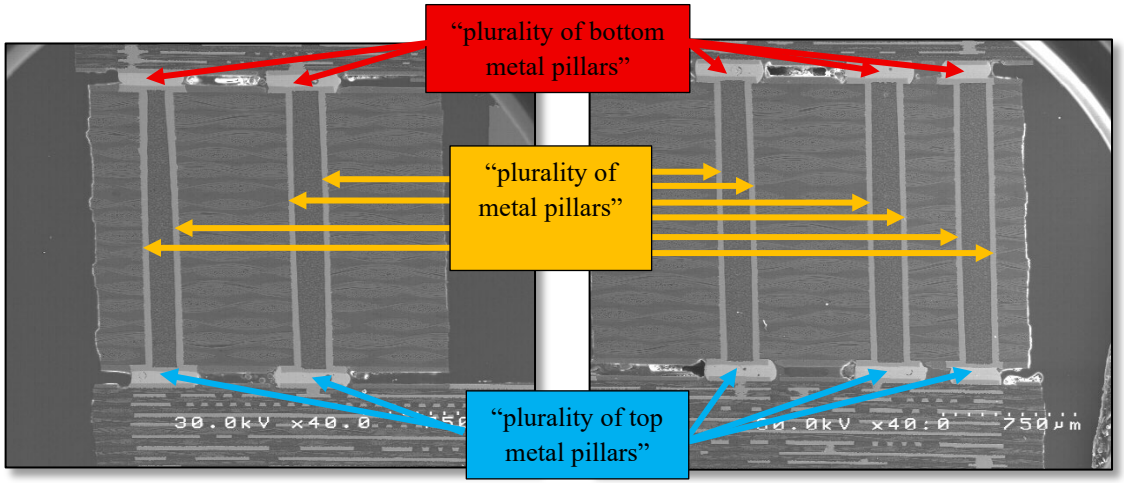
"3. The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors."

'202 Claim 3	Elements in Accused Smartphones
[3] The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors.	TopWire incorporates the disclosures set forth for Claims 1 and 2 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top chip, such as a memory chip or any other suitable top chip, mounted to the top surface of the top package substrate. The top package substrate is stacked on top of the bottom package substrate such that the top chip overlaps the bottom chip and each of the two spacer connectors. For example, the Samsung Galaxy S23 Ultra comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors:

"3. The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors."

'202 Claim 3	Elements in Accused Smartphones
	 (optical view showing the top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors)

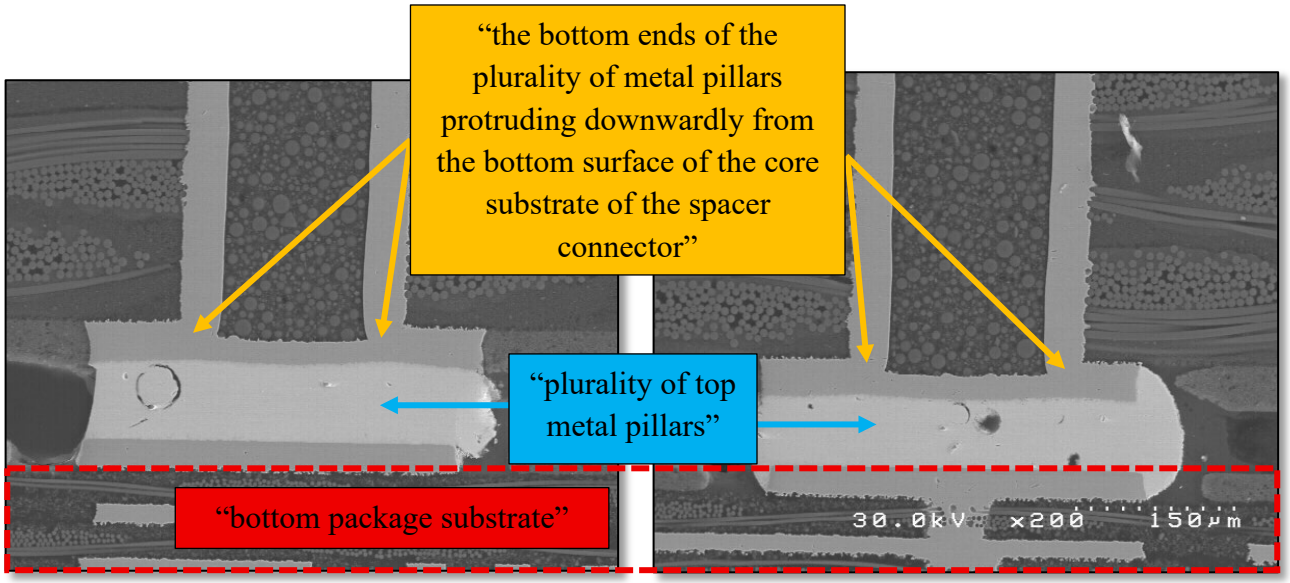
"4. The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate."

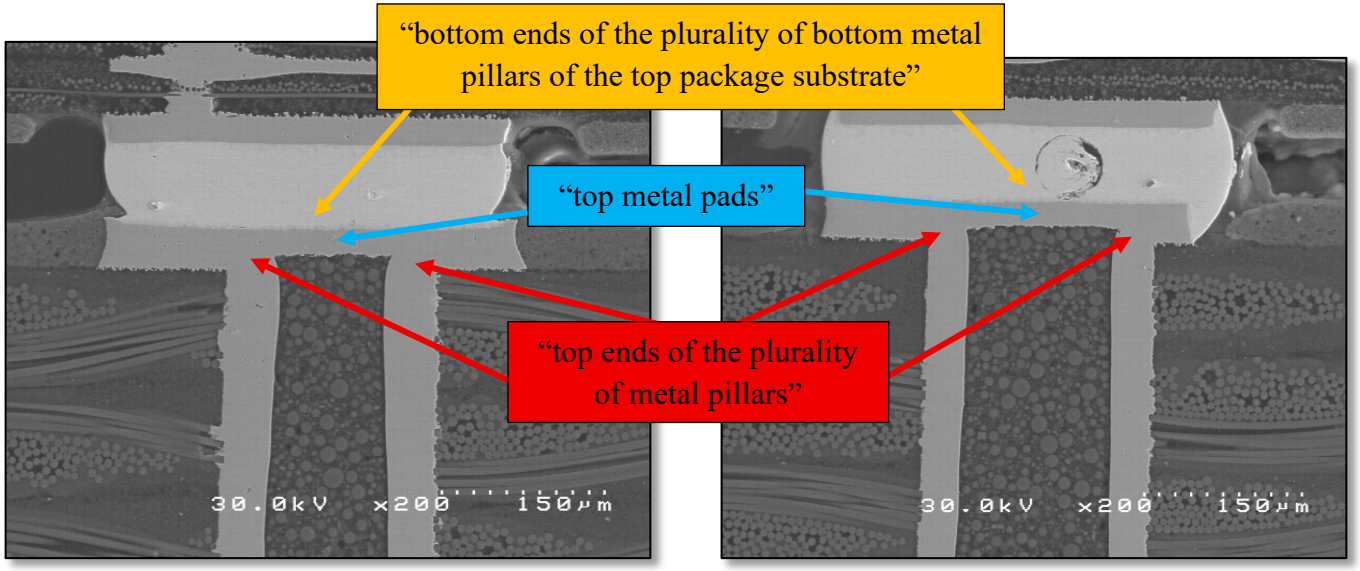
'202 Claim 4	Elements in Accused Smartphones
[4] The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. Each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned (*e.g.*, vertically aligned) with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. For example, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy S23 Ultra is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate:  (scanning electron microscope ("SEM") view showing each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate)

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
[6a] The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in Samsung's Accused Smartphones are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector. The plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. For example, the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in the Samsung Galaxy S23 Ultra are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate:

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate)

'202 Claim 6	Elements in Accused Smartphones
[**6b**] bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector.	TopWire incorporates the disclosures set forth for Claims 1, 4, and 6 as if set forth herein. The bottom ends of the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the bottom ends of the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy S23 Ultra are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:  (scanning electron microscope ("SEM") view showing bottom ends of the plurality of bottom metal pillars of the top package substrate that are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

'202 Claim 9	Elements in Accused Smartphones
[9] The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The spacer connector in Samsung's Accused Smartphones further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a spacer connector. The spacer connector further includes a plurality of bottom metal pads, such as copper metal pads or any other suitable bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars. The bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the spacer connector in the Samsung Galaxy S23 Ultra further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

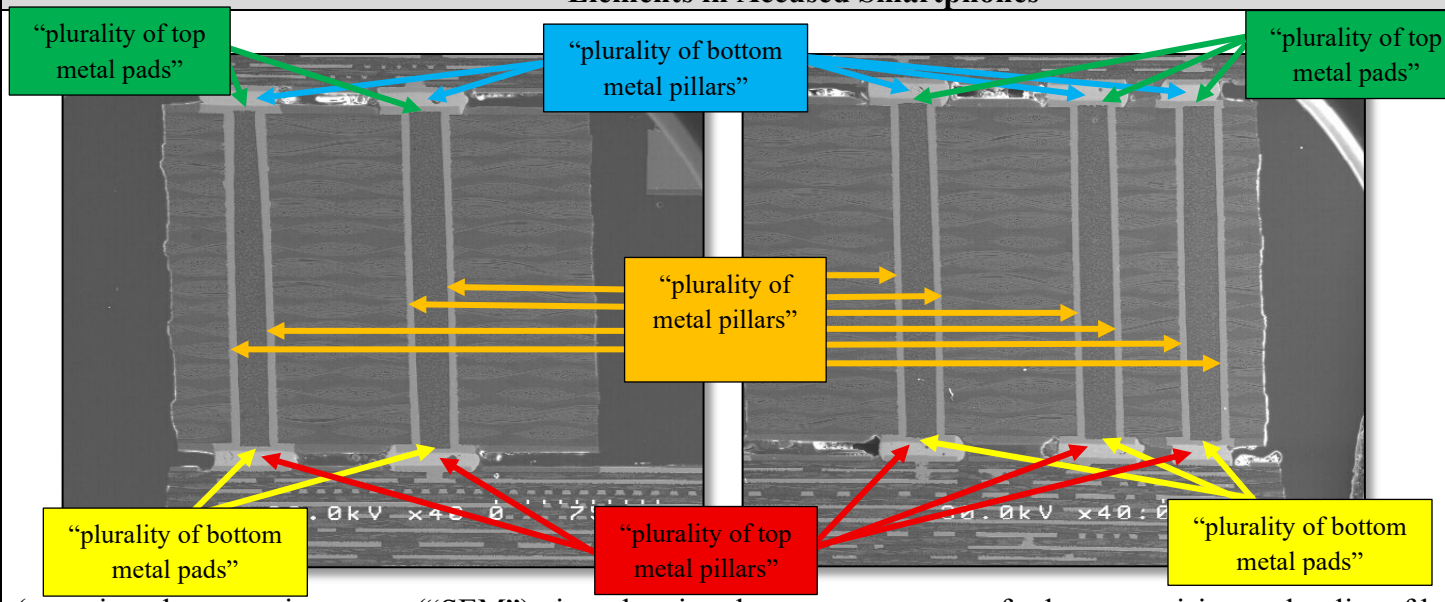
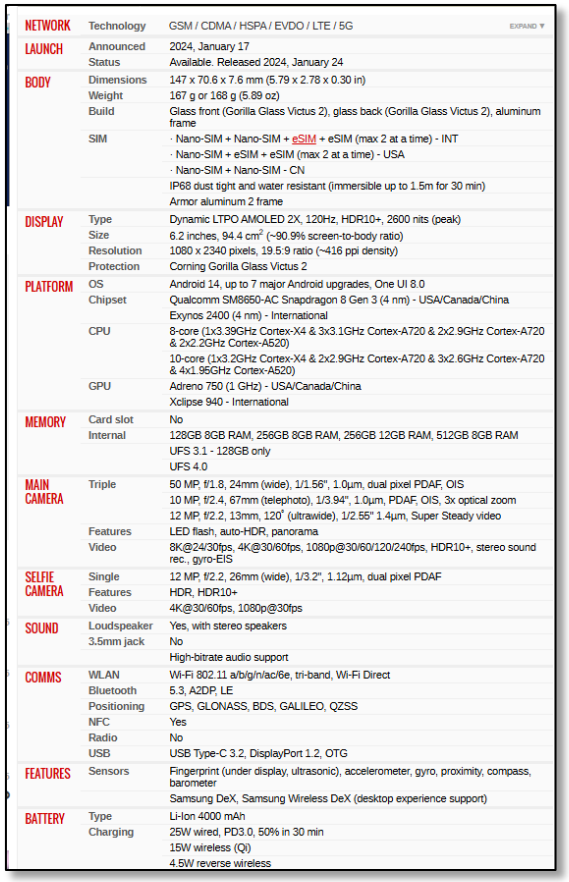
'202 Claim 9	Elements in Accused Smartphones
the corresponding top metal pads of the spacer connector.	 (scanning electron microscope ("SEM") view showing the spacer connector further comprising a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars being connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate being connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

EXHIBIT F

Exhibit F – U.S. Patent No. 9,859,202 (Accused Smartphones)
"1. A structure, comprising:"

'202 Claim 1	Elements in Accused Smartphones
[1-pre] A structure, comprising:	To the extent the preamble is limiting, Samsung's Accused Smartphones[1] comprise a structure. *E.g.*, Samsung's Accused Smartphones incorporate structures, such as motherboards (sometimes also referred to as "logic boards"). The motherboards in Samsung's Accused Smartphones contain integrated circuits (sometimes also referred to as "chips"). The motherboard performs many core functions of Samsung's Accused Smartphones.  (showing the specification of a Samsung Galaxy S24). *See* GSMARENA, *Specifications*, available at https://www.gsmarena.com/samsung_galaxy_s24-12773.php (last visited February 8, 2026).

NETWORK	Technology	GSM / CDMA / HSPA / EVDO / LTE / 5G
LAUNCH	Announced	2024, January 17
	Status	Available. Released 2024, January 24
BODY	Dimensions	147 x 70.6 x 7.6 mm (5.79 x 2.78 x 0.30 in)
	Weight	167 g or 168 g (5.89 oz)
	Build	Glass front (Gorilla Glass Victus 2), glass back (Gorilla Glass Victus 2), aluminum frame
	SIM	· Nano-SIM + Nano-SIM + eSIM + eSIM (max 2 at a time) - INT · Nano-SIM + eSIM + eSIM (max 2 at a time) - USA · Nano-SIM + Nano-SIM - CN
		IP68 dust tight and water resistant (immersible up to 1.5m for 30 min)
		Armor aluminum 2 frame
DISPLAY	Type	Dynamic LTPO AMOLED 2X, 120Hz, HDR10+, 2600 nits (peak)
	Size	6.2 inches, 94.4 cm² (~90.9% screen-to-body ratio)
	Resolution	1080 x 2340 pixels, 19.5:9 ratio (~416 ppi density)
	Protection	Corning Gorilla Glass Victus 2
PLATFORM	OS	Android 14, up to 7 major Android upgrades, One UI 8.0
	Chipset	Qualcomm SM8650-AC Snapdragon 8 Gen 3 (4 nm) - USA/Canada/China
		Exynos 2400 (4 nm) - International
	CPU	8-core (1x3.39GHz Cortex-X4 & 3x3.1GHz Cortex-A720 & 2x2.9GHz Cortex-A720 & 2x2.2GHz Cortex-A520)
		10-core (1x3.2GHz Cortex-X4 & 2x2.9GHz Cortex-A720 & 3x2.6GHz Cortex-A720 & 4x1.95GHz Cortex-A520)
	GPU	Adreno 750 (1 GHz) - USA/Canada/China
		Xclipse 940 - International
MEMORY	Card slot	No
	Internal	128GB 8GB RAM, 256GB 8GB RAM, 256GB 12GB RAM, 512GB 8GB RAM
		UFS 3.1 - 128GB only
		UFS 4.0
MAIN CAMERA	Triple	50 MP, f/1.8, 24mm (wide), 1/1.56", 1.0µm, dual pixel PDAF, OIS
		10 MP, f/2.4, 67mm (telephoto), 1/3.94", 1.0µm, PDAF, OIS, 3x optical zoom
		12 MP, f/2.2, 13mm, 120° (ultrawide), 1/2.55" 1.4µm, Super Steady video
	Features	LED flash, auto-HDR, panorama
	Video	8K@24/30fps, 4K@30/60fps, 1080p@30/60/120/240fps, HDR10+, stereo sound rec., gyro-EIS
SELFIE CAMERA	Single	12 MP, f/2.2, 26mm (wide), 1/3.2", 1.12µm, dual pixel PDAF
	Features	HDR, HDR10+
	Video	4K@30/60fps, 1080p@30fps
SOUND	Loudspeaker	Yes, with stereo speakers
	3.5mm jack	No
		High-bitrate audio support
COMMS	WLAN	Wi-Fi 802.11 a/b/g/n/ac/6e, tri-band, Wi-Fi Direct
	Bluetooth	5.3, A2DP, LE
	Positioning	GPS, GLONASS, BDS, GALILEO, QZSS
	NFC	Yes
	Radio	No
	USB	USB Type-C 3.2, DisplayPort 1.2, OTG
FEATURES	Sensors	Fingerprint (under display, ultrasonic), accelerometer, gyro, proximity, compass, barometer
		Samsung DeX, Samsung Wireless DeX (desktop experience support)
BATTERY	Type	Li-Ion 4000 mAh
	Charging	25W wired, PD3.0, 50% in 30 min
		15W wireless (Qi)
		4.5W reverse wireless

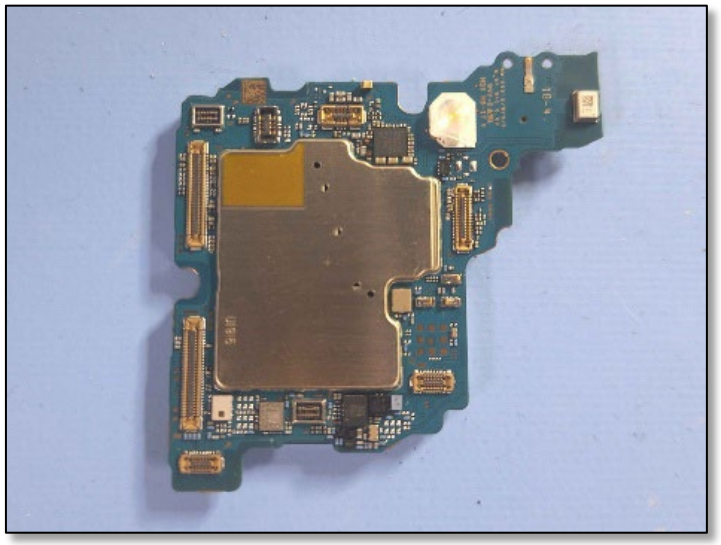
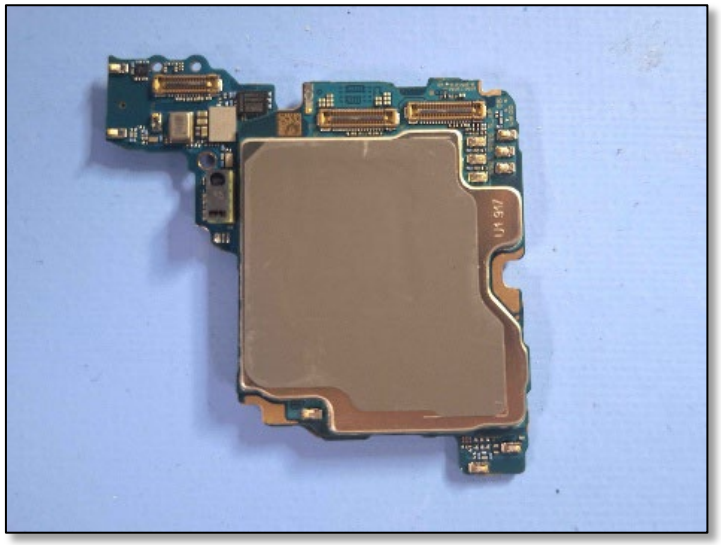
[1] The term Accused Smartphones is defined as those smartphone products accused of infringement in the cover pleading of these contentions, and those further identified during discovery.

Samsung v. TopWire | IPR2026-00324
CONFIDENTIAL
Ex. 2004

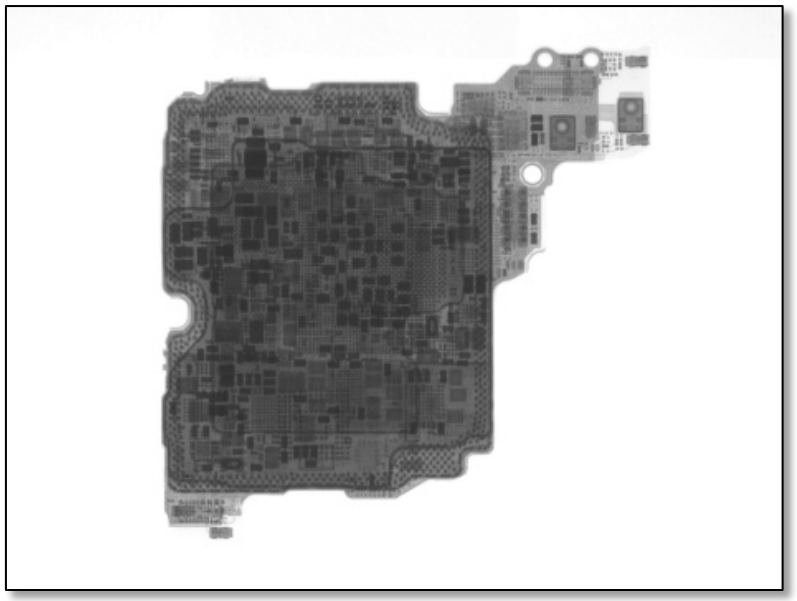
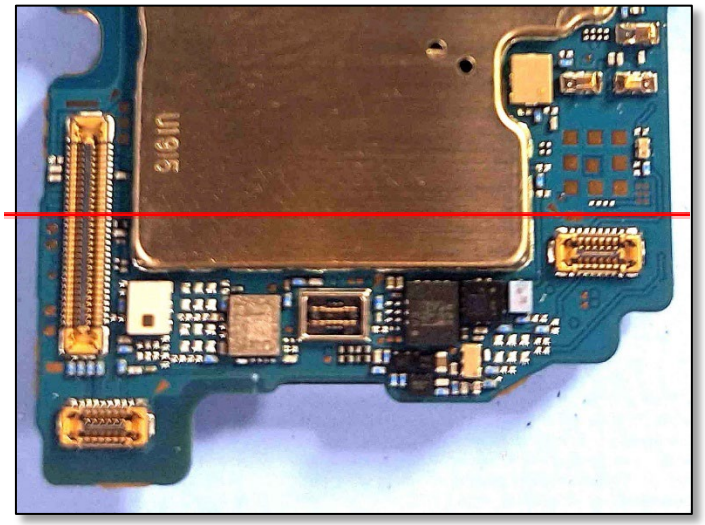
'202 Claim 1	Elements in Accused Smartphones
	 (showing top-side view of a Samsung Galaxy S24)  (showing bottom-side view of a Samsung Galaxy S24)

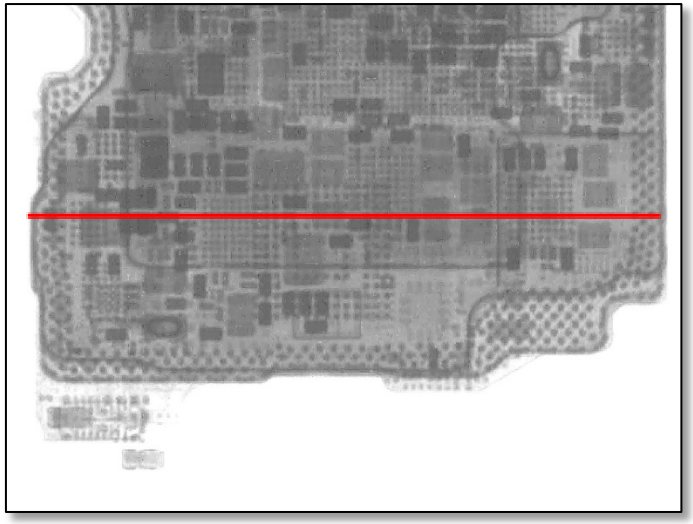
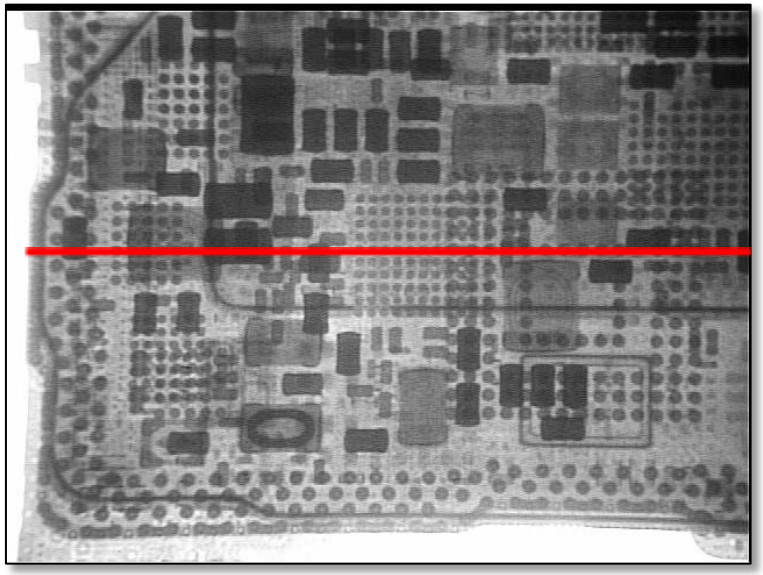
Samsung v. TopWire | IPR2026-00324
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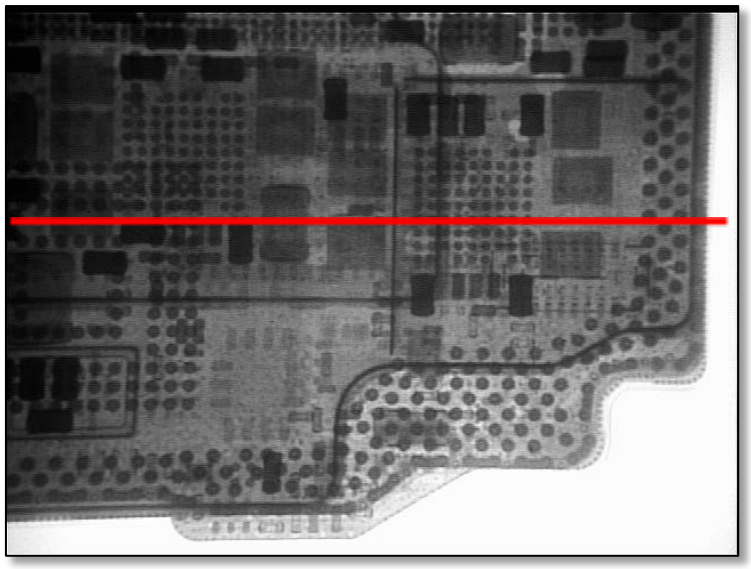
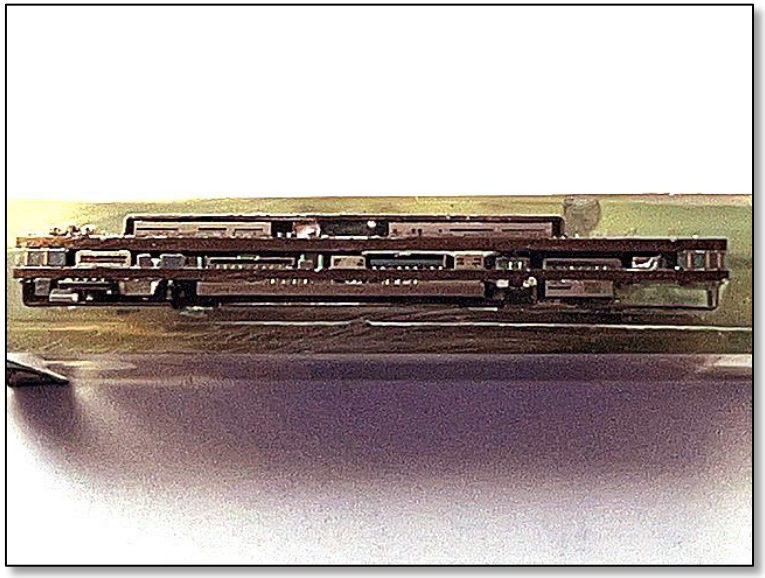
'202 Claim 1	Elements in Accused Smartphones
	 (showing a disassembled Samsung Galaxy S24)  (showing a disassembled example Samsung Galaxy S24)

'202 Claim 1	Elements in Accused Smartphones
	For example, the Samsung Galaxy S24 comprises a structure:  (showing a top-side view of a motherboard in a Samsung Galaxy S24)  (showing a bottom-side view of a motherboard in a Samsung Galaxy S24)

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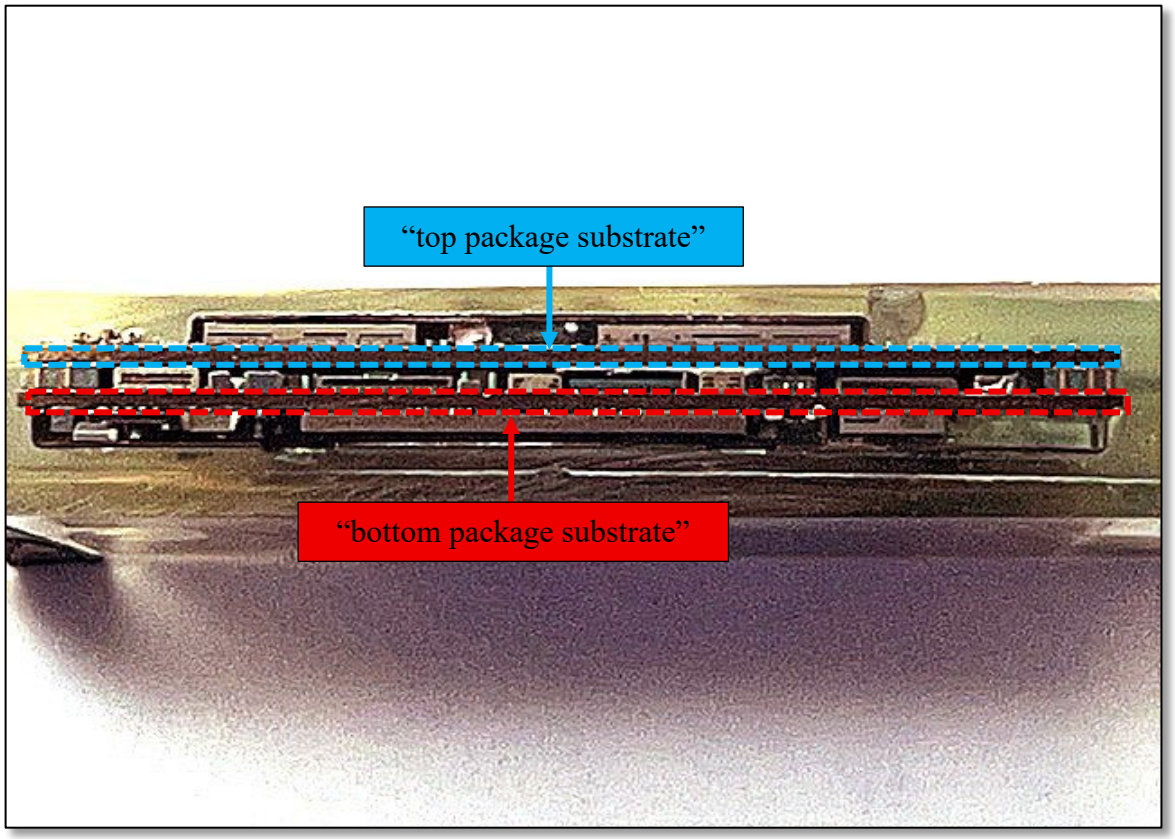
'202 Claim 1	Elements in Accused Smartphones
	 (showing an x-ray image of a motherboard in a Samsung Galaxy S24)  (showing a top-side view of a motherboard with a red cross-section area in a Samsung Galaxy S24)

'202 Claim 1	Elements in Accused Smartphones
	 (showing an x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S24)  (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S24)

'202 Claim 1	Elements in Accused Smartphones
	 (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S24)  (optical view showing a cross-section view of a motherboard in a Samsung Galaxy S24)

'202 Claim 1	Elements in Accused Smartphones
[1a] a bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate. For example, the Samsung Galaxy S24 comprises a bottom package substrate:

'202 Claim 1	Elements in Accused Smartphones
	 (optical view showing a bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1b] a top package substrate stacked on top of the bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top package substrate stacked on top of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate, stacked on top of the bottom package substrate. For example, the Samsung Galaxy S24 comprises a top package substrate stacked on top of the bottom package substrate:  (optical view showing a top package substrate stacked on top of the bottom package substrate)

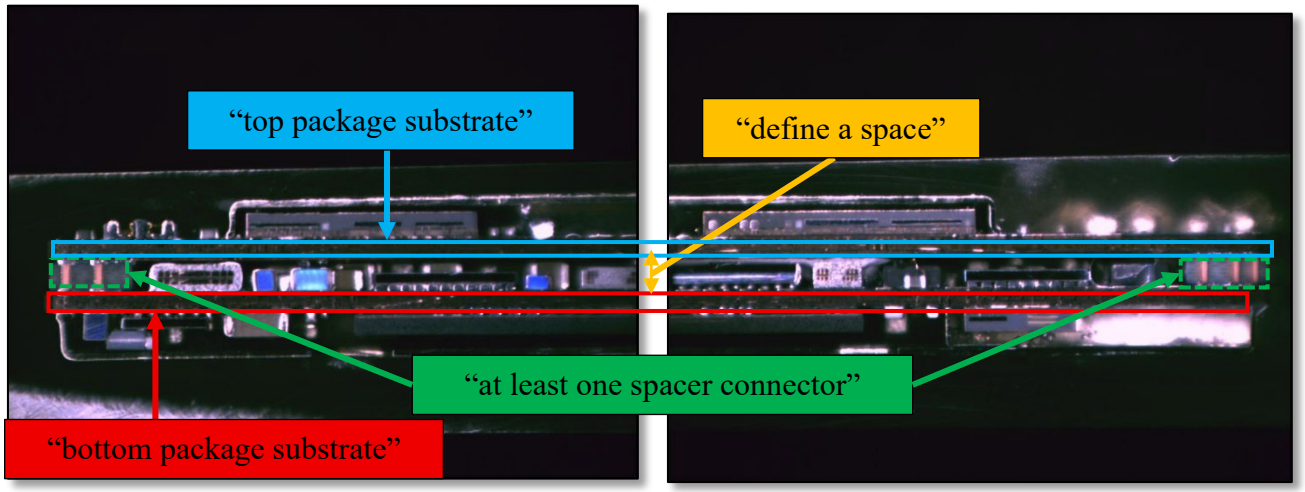
'202 Claim 1	Elements in Accused Smartphones
[1c] at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector, such as a metallic structure or any other suitable spacer connector. The at least one spacer connector is interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. Therefore, the at least one spacer connector separates the top package substrate from the bottom package substrate. For example, the Samsung Galaxy S24 comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate:  (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

Exhibit F – U.S. Patent No. 9,859,202 (Accused Smartphones)
"at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate"

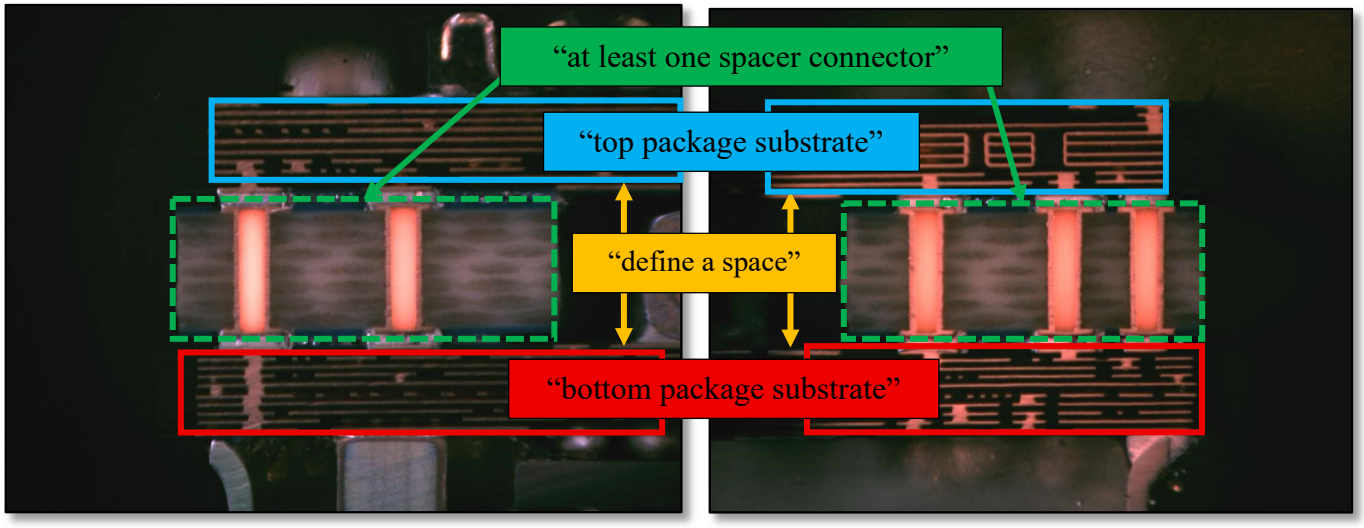
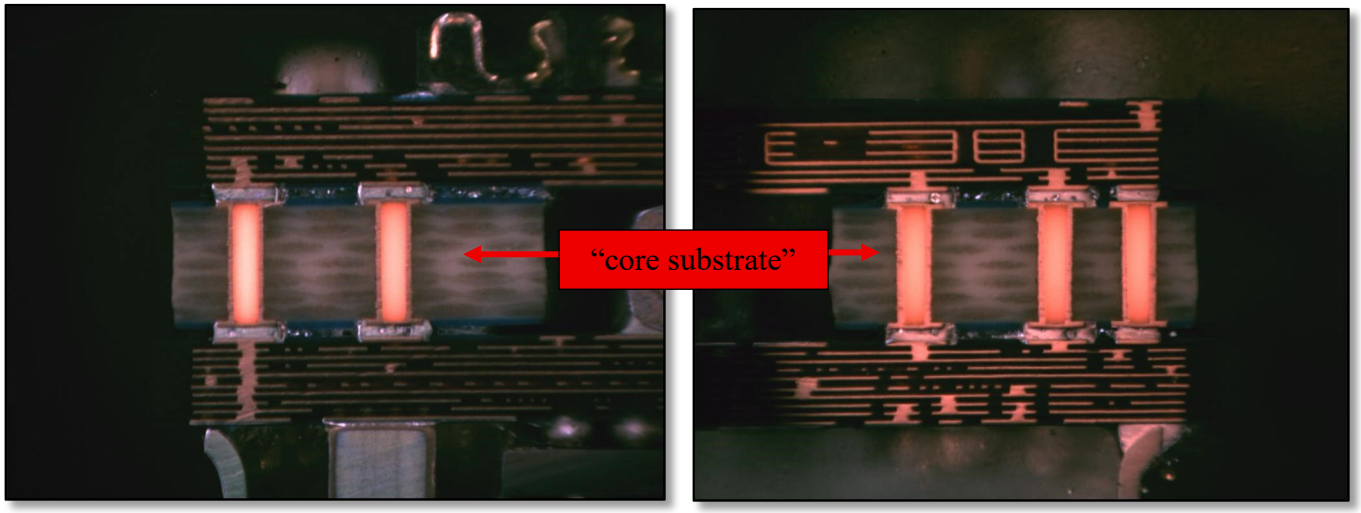
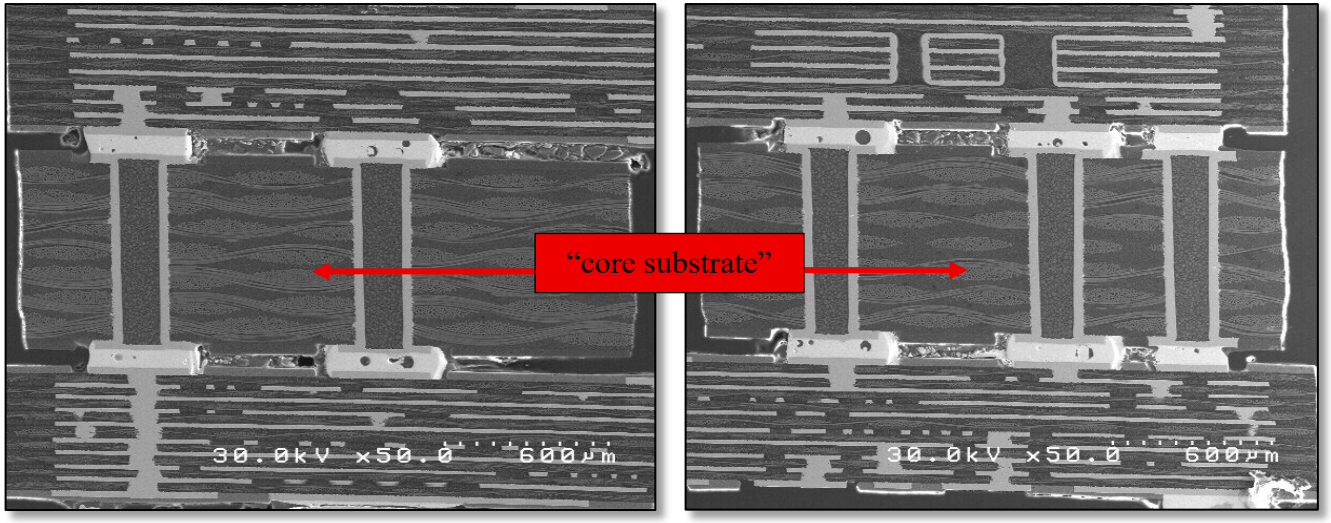
'202 Claim 1	Elements in Accused Smartphones
	 (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

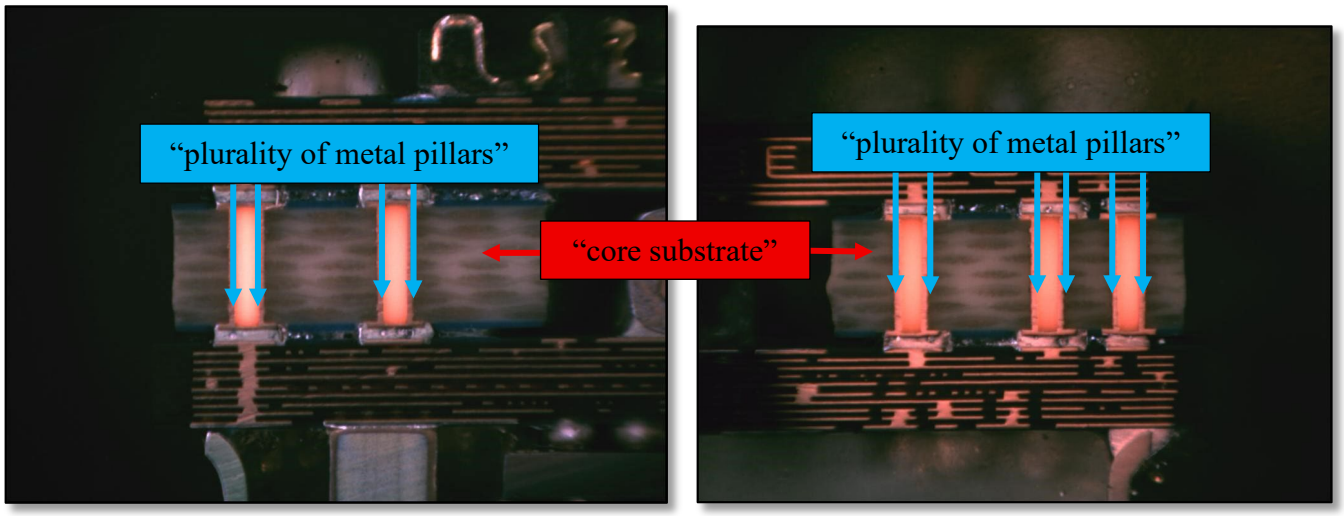
Exhibit F – U.S. Patent No. No. 9,859,202 (Accused Smartphones)
"wherein the spacer connector comprises:"

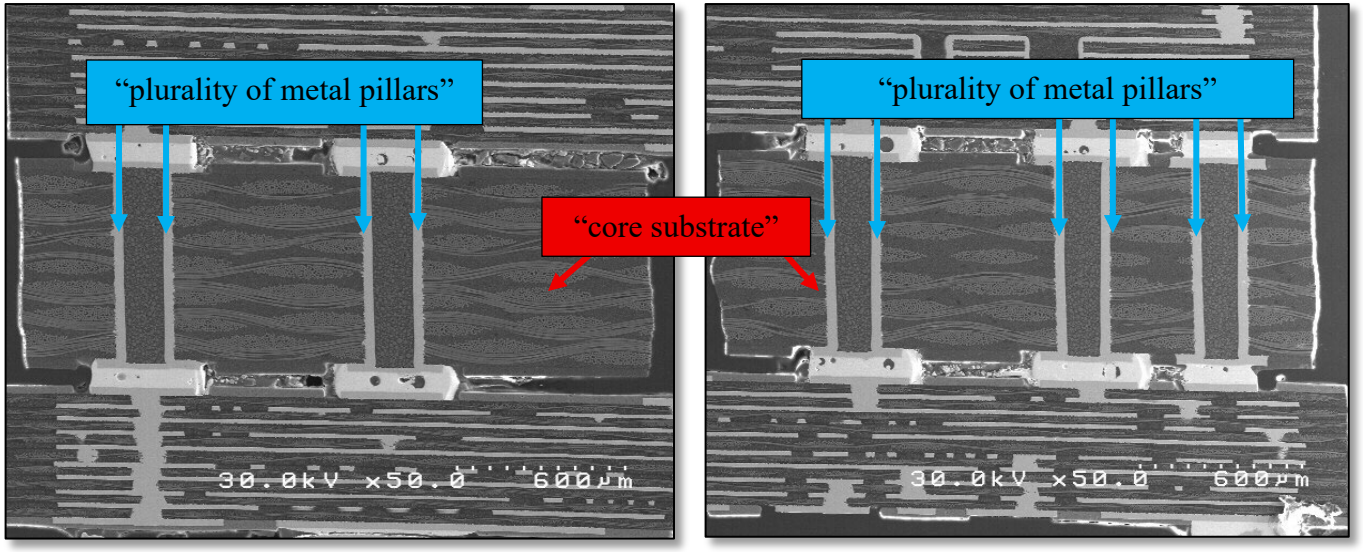
'202 Claim 1	Elements in Accused Smartphones
[1d-pre] wherein the spacer connector comprises:	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. See below.

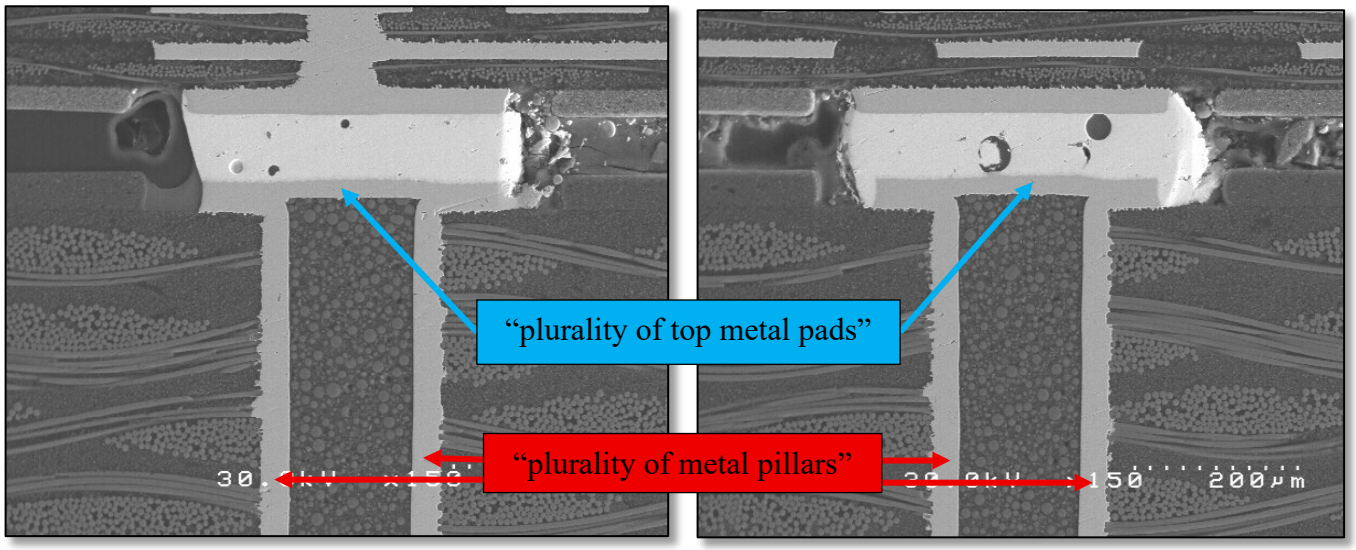
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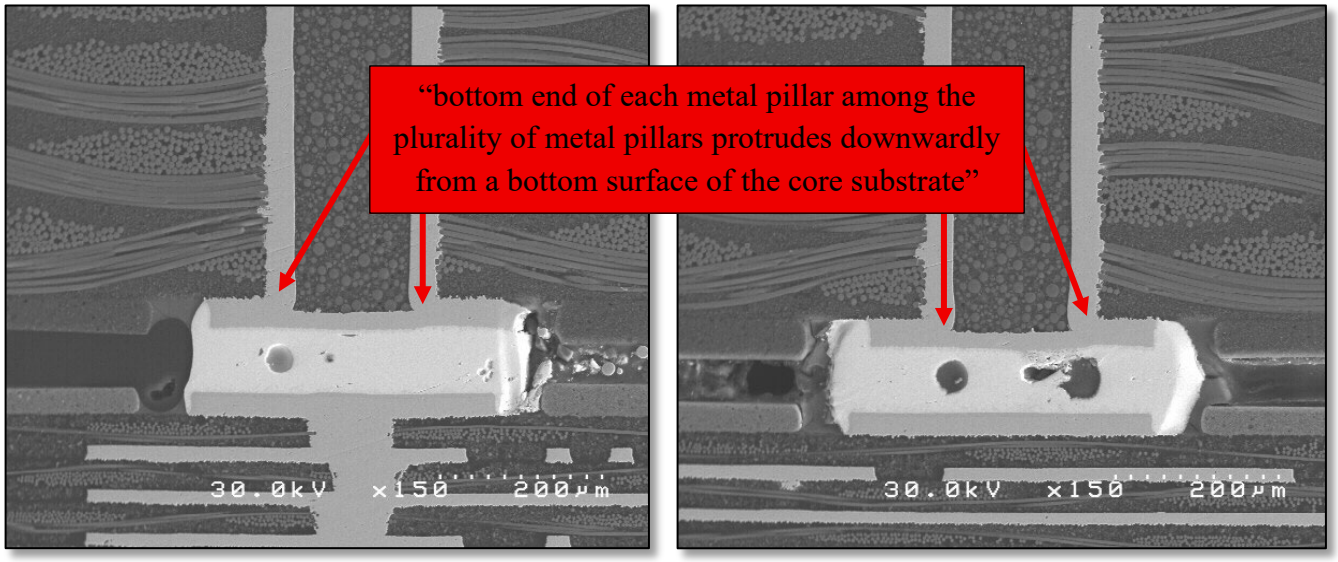
'202 Claim 1	Elements in Accused Smartphones
[1d-1] a core substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a core substrate, such as a silicon substrate or any other suitable core substrate. For example, the at least one spacer connector of the Samsung Galaxy S24 comprises a core substrate:  (optical view showing the core substrate)

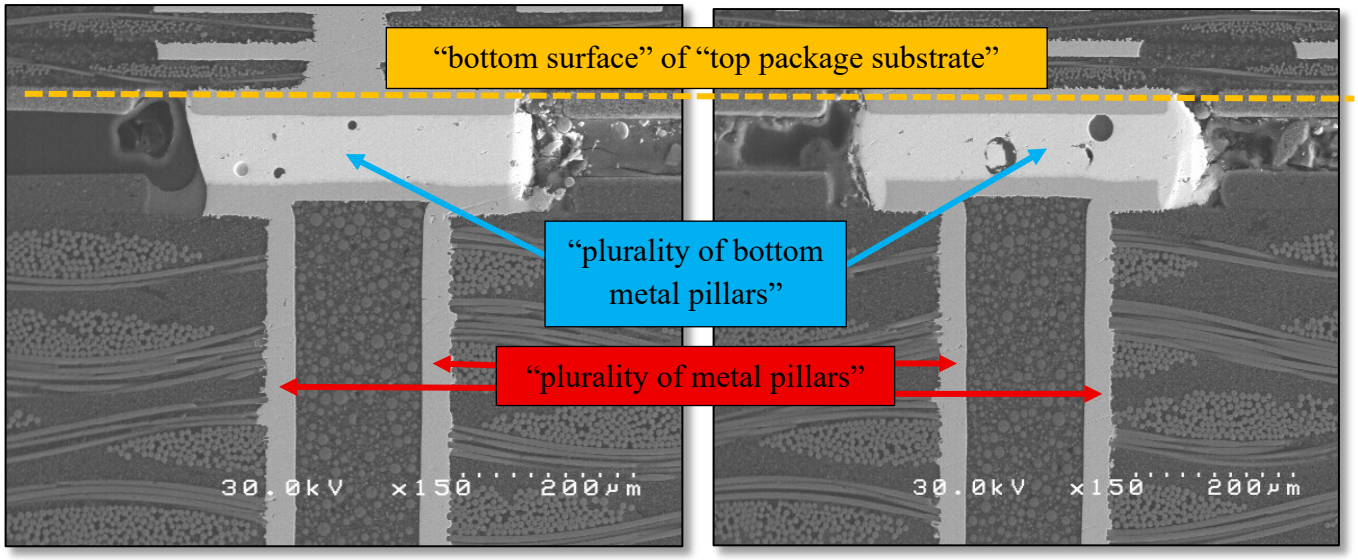
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the core substrate)

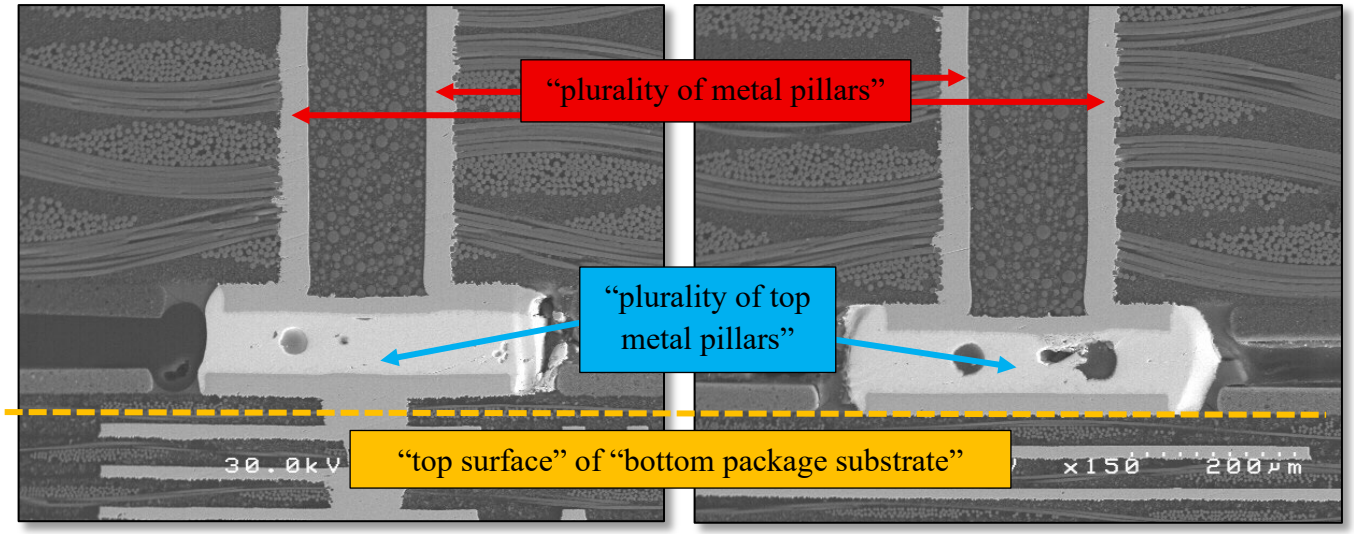
'202 Claim 1	Elements in Accused Smartphones
[1d-2] a plurality of metal pillars, each passing through the core substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of metal pillars, each passing through the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of metal pillars, such as copper pillars or any other suitable metal pillars. Each of the plurality of metal pillars passes through (*e.g.*, intersects) the core substrate. For example, the at least one spacer connector of the Samsung Galaxy S24 comprises a plurality of metal pillars, each passing through the core substrate:  (optical view showing the plurality of metal pillars, each passing through the core substrate)

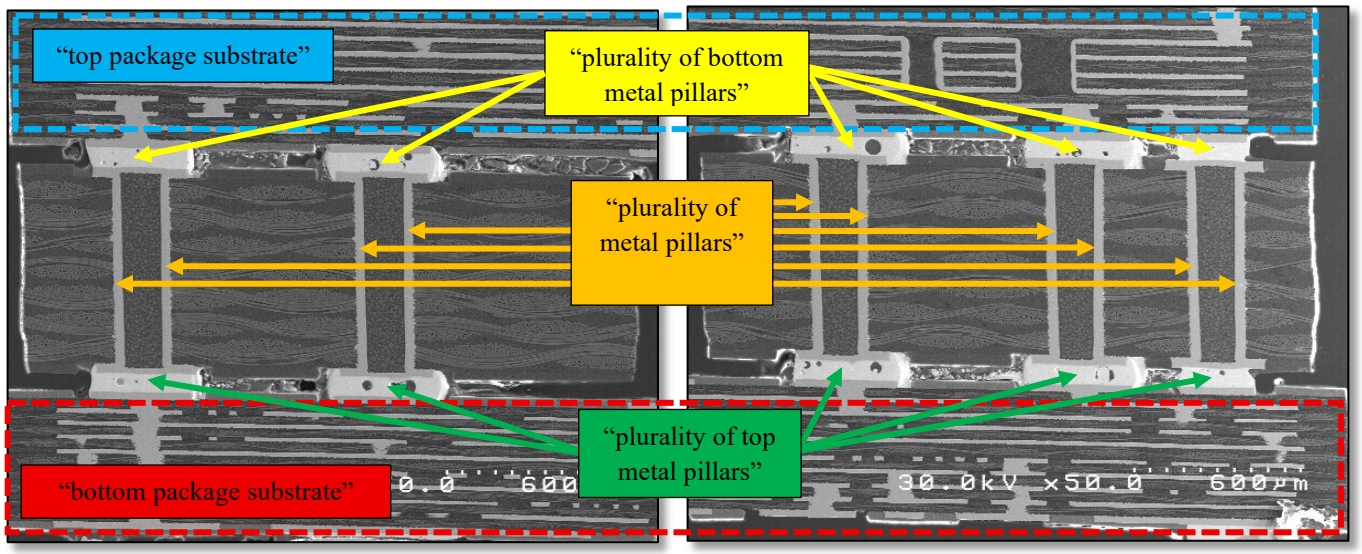
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the plurality of metal pillars, each passing through the core substrate)

'202 Claim 1	Elements in Accused Smartphones
[1d-3] a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of top metal pads, such as copper metal pads or any other suitable metal pads. Each of the plurality of metal pads are connected to a top end of a corresponding metal pillar among the plurality of metal pillars. For example, the at least one spacer connector of the Samsung Galaxy S24 comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars:  (scanning electron microscope ("SEM") view showing the plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars)

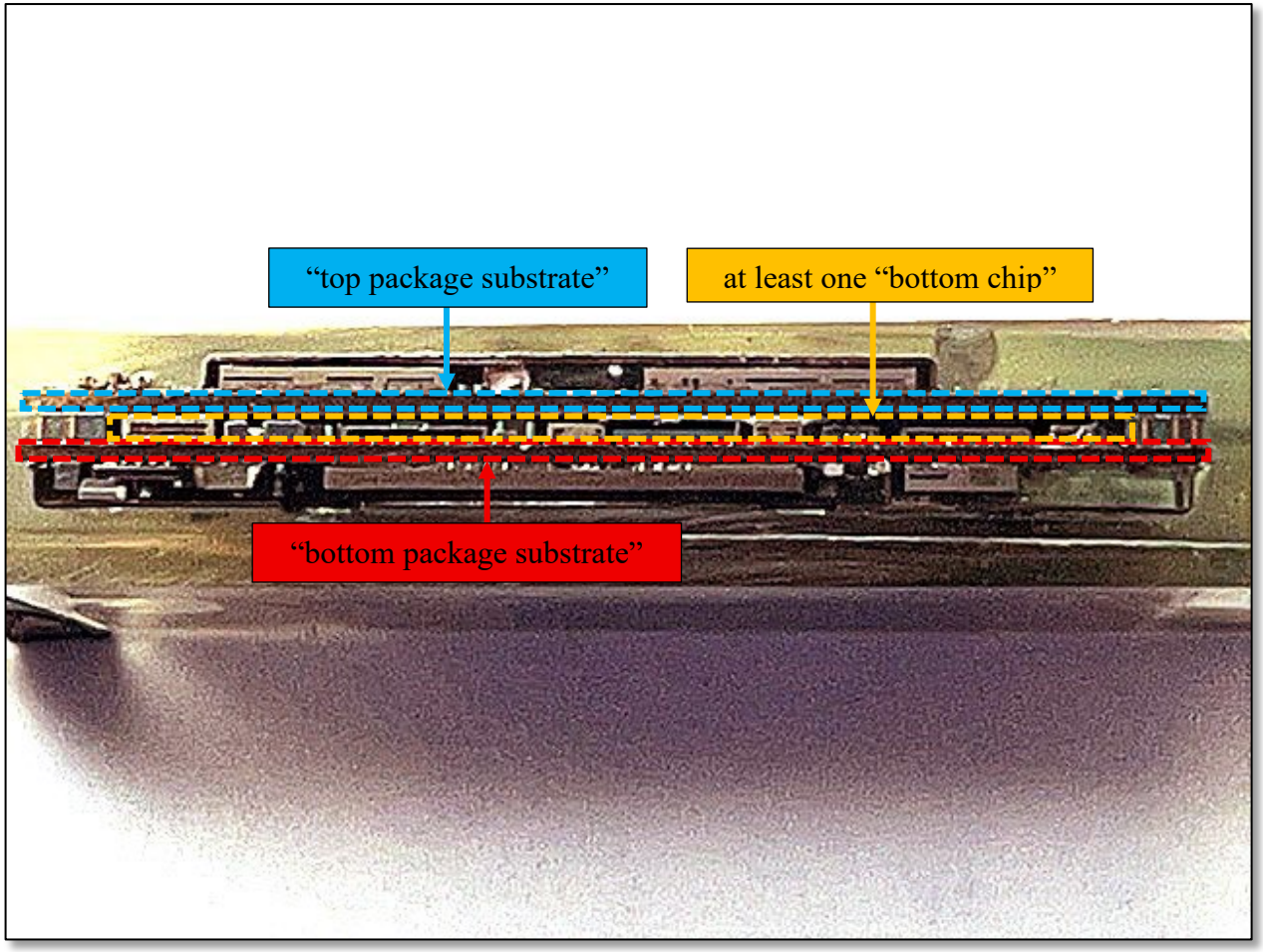
'202 Claim 1	Elements in Accused Smartphones
[1d-4] wherein a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. In the at least one spacer connector of Samsung's Accused Smartphones, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. In the motherboard, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from (*e.g.*, extends past) a bottom surface of the core substrate. For example, in the at least one spacer connector of the Samsung Galaxy S24, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate:  (scanning electron microscope ("SEM") view showing the bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate)

'202 Claim 1	Elements in Accused Smartphones
[1e] the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate has a bottom surface. Additionally, a plurality of bottom metal pillars, such as tin metal pillars or any other suitable bottom metal pillars, are connected to the bottom surface of the top package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the top package substrate of the Samsung Galaxy S24 has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

'202 Claim 1	Elements in Accused Smartphones
[1f] the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom package substrate of Samsung's Accused Smartphones has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom package substrate has a top surface. Additionally, a plurality of top metal pillars, such as tin metal pillars or any other suitable top metal pillars, are connected to the top surface of the bottom package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the bottom package substrate of the Samsung Galaxy S24 has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

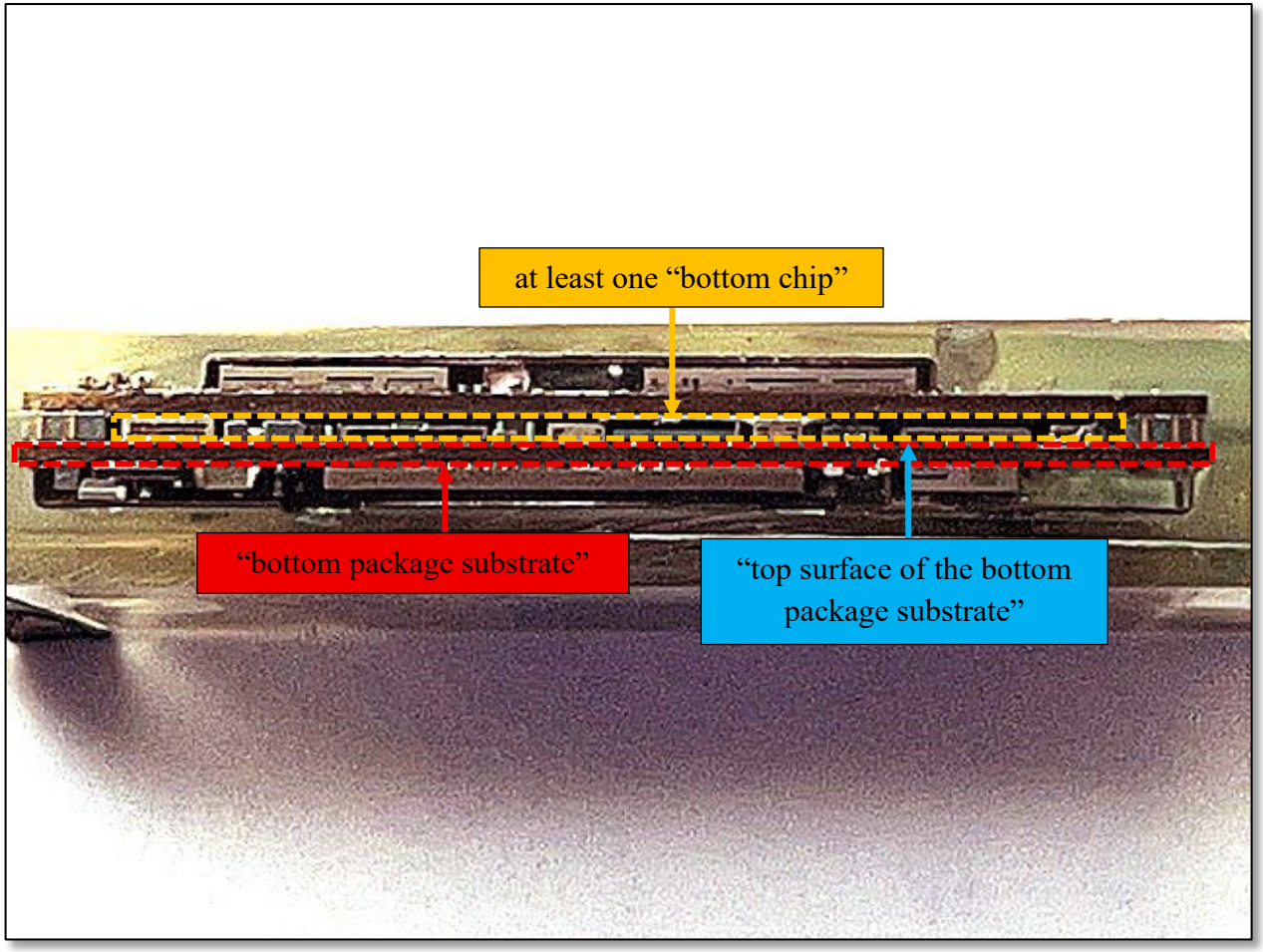
'202 Claim 1	Elements in Accused Smartphones
[1g] the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate is electrically coupled to the bottom package substrate. Additionally, current flows between the top package substrate and the bottom package substrate via the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate, all of which are electrically coupled together. For example, the top package substrate of the Samsung Galaxy S24 is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate:  (scanning electron microscope ("SEM") view showing the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1h] a bottom chip arranged in the space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, arranged between the space between the bottom package substrate and the top package substrate formed by the at least one spacer connector. For example, the Samsung Galaxy S24 comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate:

'202 Claim 1	Elements in Accused Smartphones
	 (optical view showing the bottom chip arranged in the space between the bottom package substrate and the top package substrate)

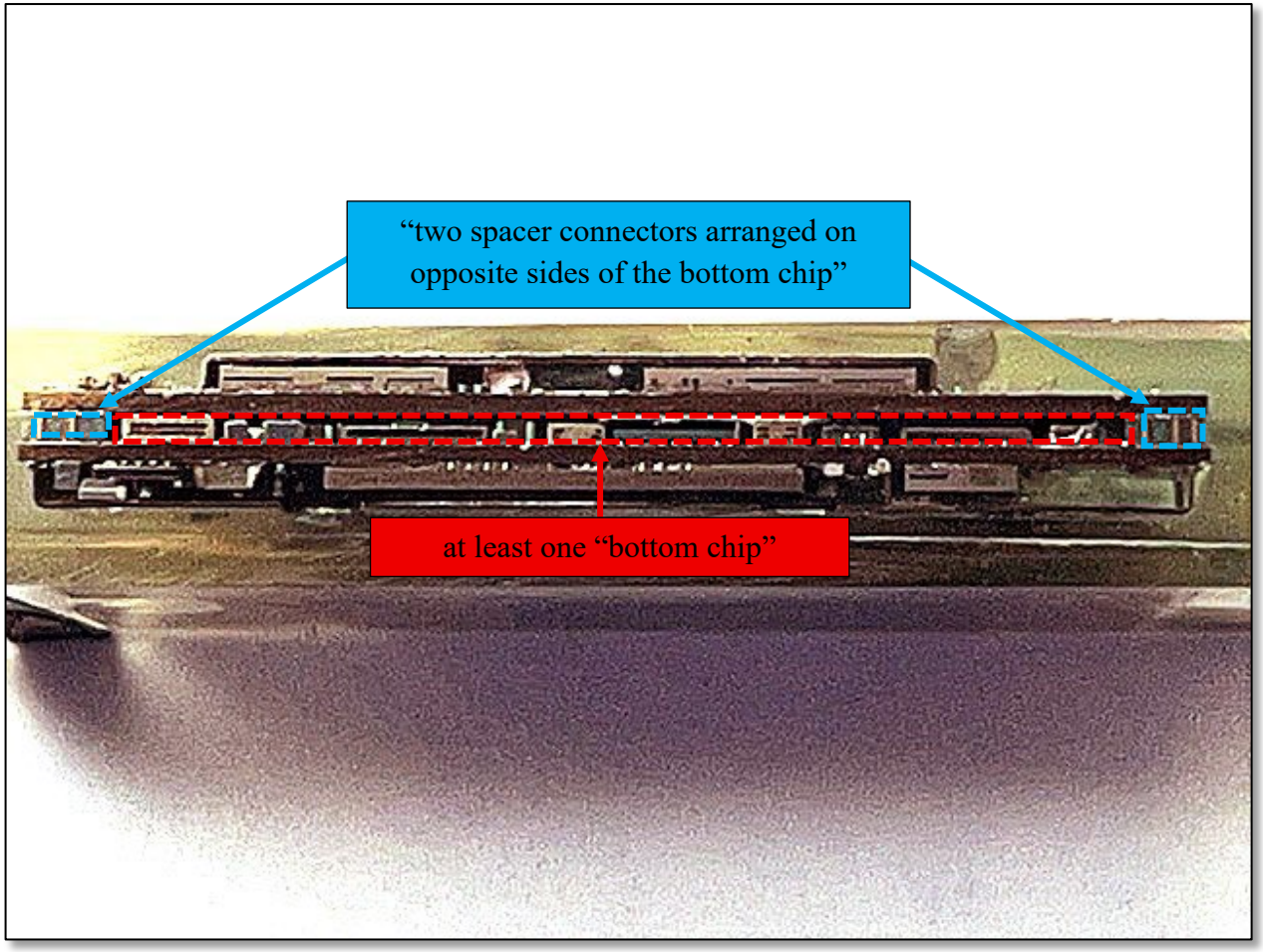
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CONFIDENTIAL
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'202 Claim 1	Elements in Accused Smartphones
[1i] the bottom chip is mounted to the top surface of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged mounted to the top surface of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, mounted to the top surface of the bottom package substrate. For example, the bottom chip of the Samsung Galaxy S24 is mounted to the top surface of the bottom package substrate:

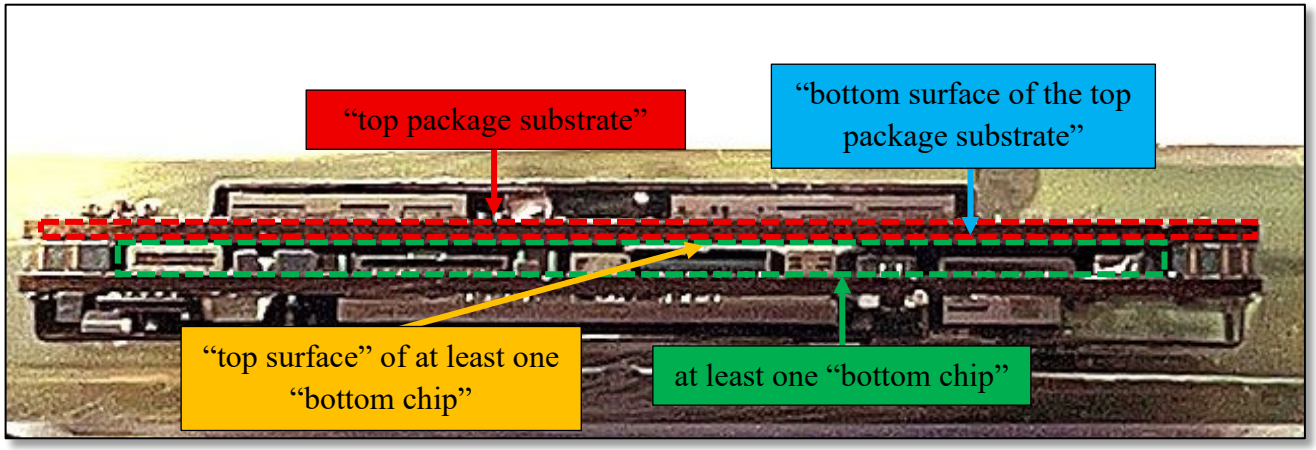
'202 Claim 1	Elements in Accused Smartphones
	 (optical view showing the bottom chip mounted to the top surface of the bottom package substrate)

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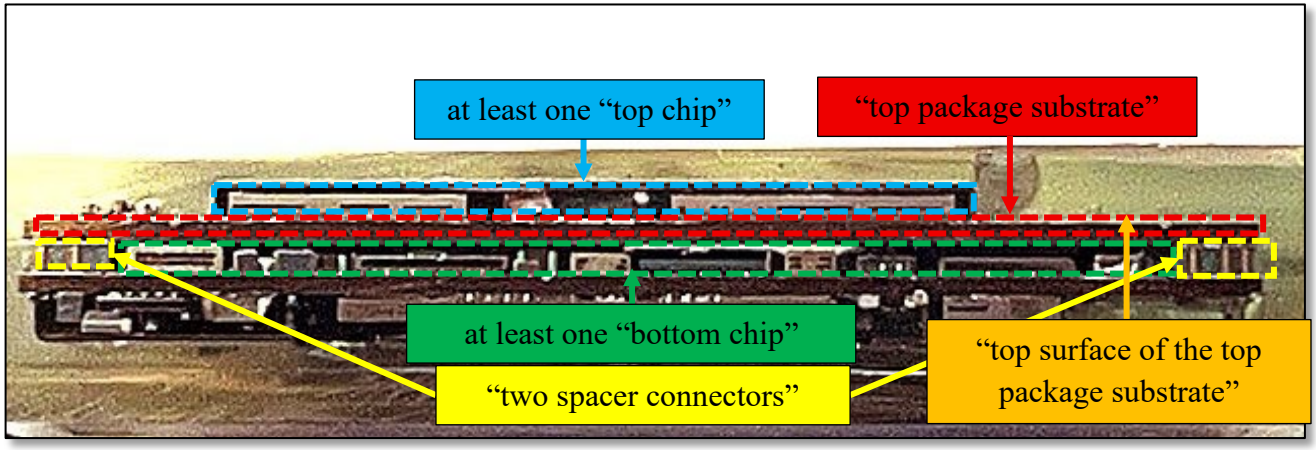
'202 Claim 1	Elements in Accused Smartphones
[1j] the at least one spacer connector comprises two spacer connectors arranged on opposite sides of the bottom chip.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises two spacer connectors arranged on opposite sides of the bottom chip. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the at least one spacer connector includes two spacer connectors arranged on opposite sides of the bottom chip. For example, the at least one spacer connector of the Samsung Galaxy S24 comprises two spacer connectors arranged on opposite sides of the bottom chip:

'202 Claim 1	Elements in Accused Smartphones
	 (optical view showing the at least one spacer connector comprising two spacer connectors arranged on opposite sides of the bottom chip)

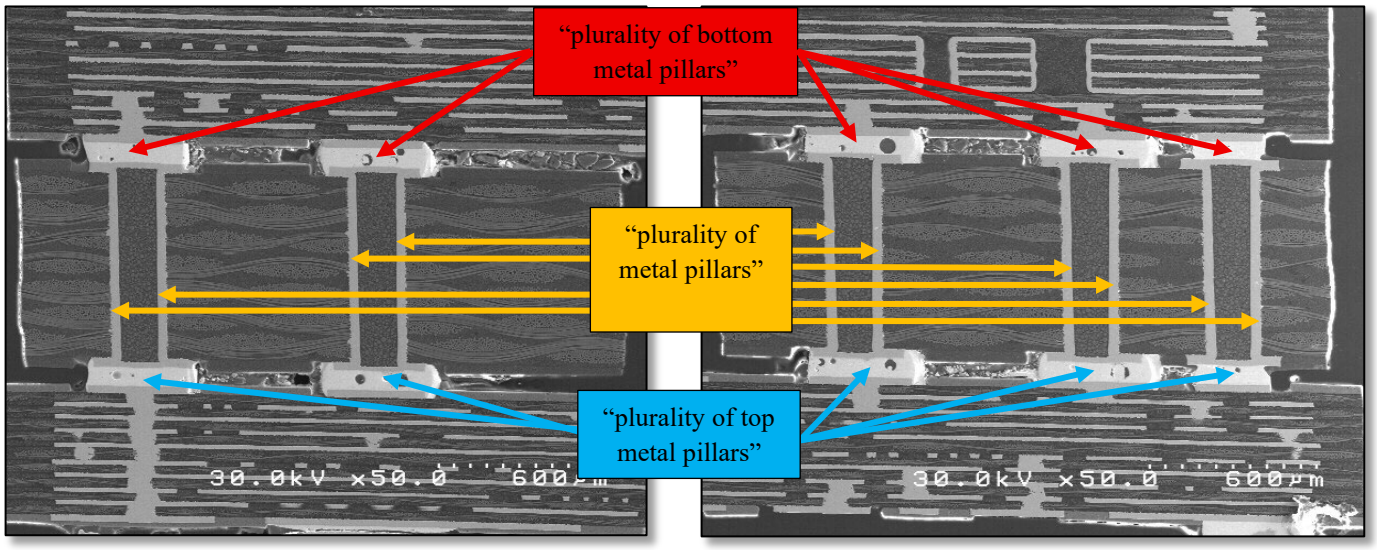
"2. The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate."

'202 Claim 2	Elements in Accused Smartphones
[2] The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom chip of Samsung's Accused Smartphones has a top surface that is spaced downwardly from the bottom surface of the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom chip has a top surface that is spaced downwardly from the bottom surface of the top package substrate. For example, in the Samsung Galaxy S24, a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate:  (optical view showing the top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate)

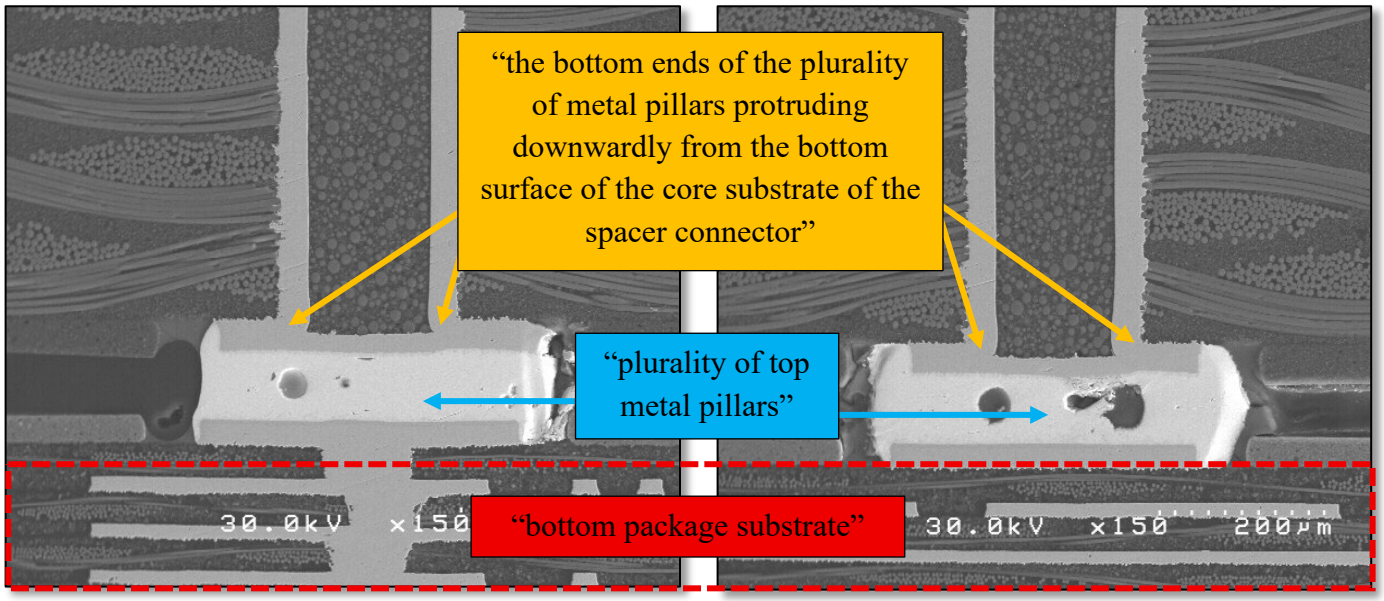
"3. The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors."

'202 Claim 3	Elements in Accused Smartphones
[3] The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors.	TopWire incorporates the disclosures set forth for Claims 1 and 2 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top chip, such as a memory chip or any other suitable top chip, mounted to the top surface of the top package substrate. The top package substrate is stacked on top of the bottom package substrate such that the top chip overlaps the bottom chip and each of the two spacer connectors. For example, the Samsung Galaxy S24 comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors:  (optical view showing the top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors)

"4. The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate."

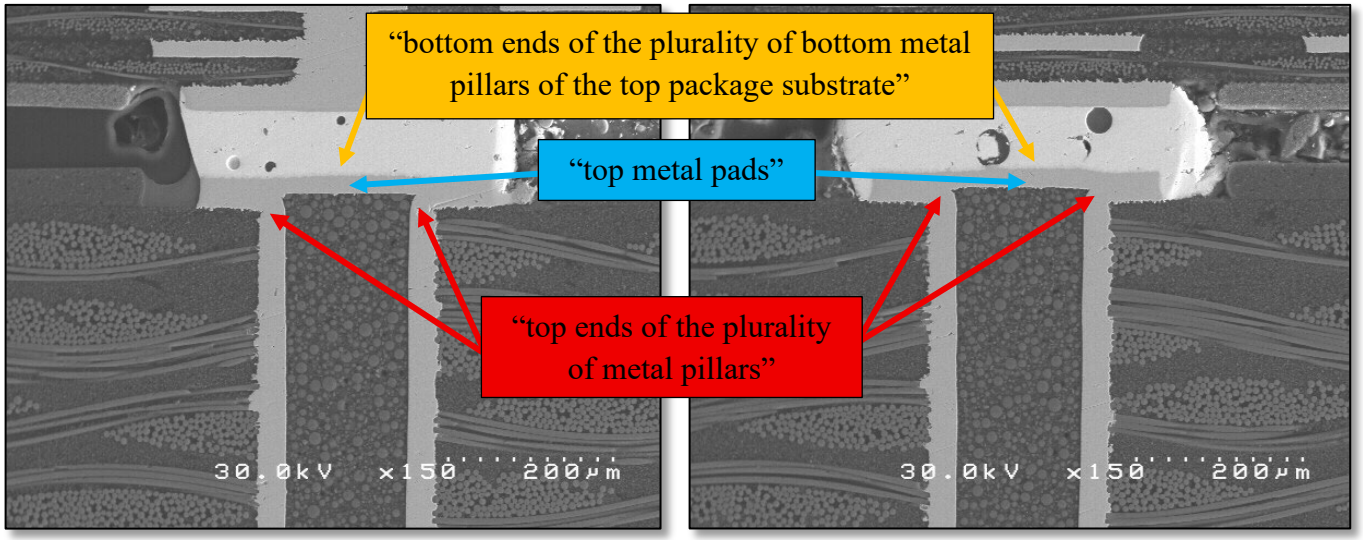
'202 Claim 4	Elements in Accused Smartphones
[4] The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. Each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned (*e.g.*, vertically aligned) with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. For example, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy S24 is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate:  (scanning electron microscope ("SEM") view showing each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate)

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
[6a] The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in Samsung's Accused Smartphones are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector. The plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. For example, the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in the Samsung Galaxy S24 are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate: 

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
	(scanning electron microscope ("SEM") view showing the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate)

'202 Claim 6	Elements in Accused Smartphones
[**6b**] bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector.	TopWire incorporates the disclosures set forth for Claims 1, 4, and 6 as if set forth herein. The bottom ends of the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the bottom ends of the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy S24 are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:  (scanning electron microscope ("SEM") view showing bottom ends of the plurality of bottom metal pillars of the top package substrate that are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

'202 Claim 9	Elements in Accused Smartphones
[9] The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The spacer connector in Samsung's Accused Smartphones further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a spacer connector. The spacer connector further includes a plurality of bottom metal pads, such as copper metal pads or any other suitable bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars. The bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the spacer connector in the Samsung Galaxy S24 further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

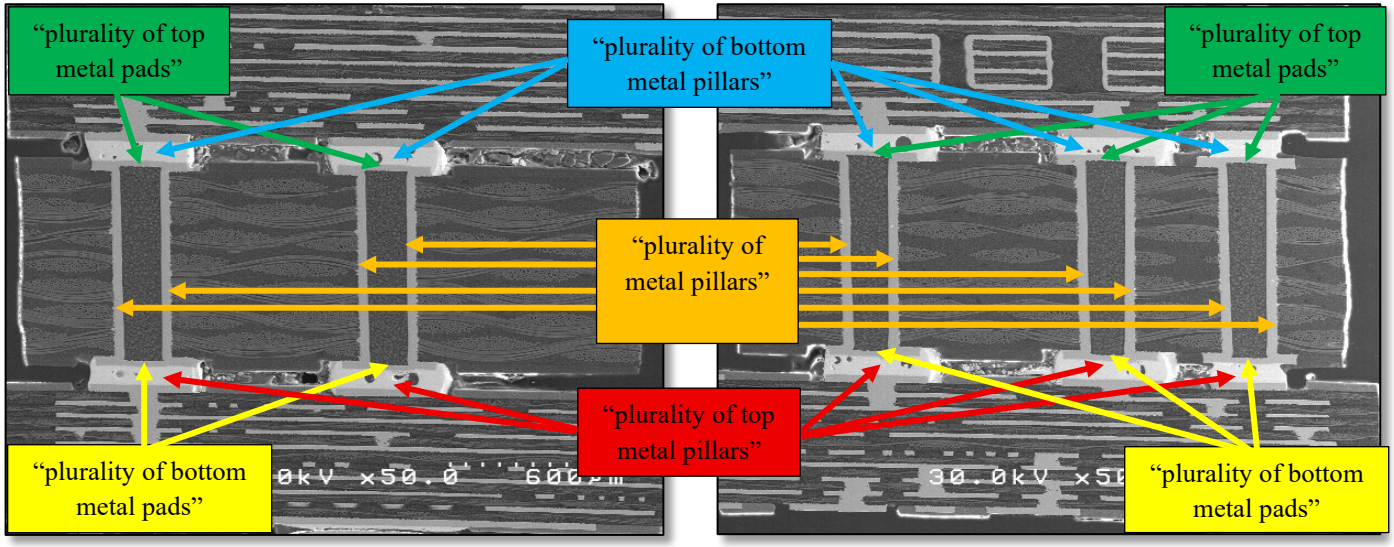
'202 Claim 9	Elements in Accused Smartphones
the corresponding top metal pads of the spacer connector.	 (scanning electron microscope ("SEM") view showing the spacer connector further comprising a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars being connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate being connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

EXHIBIT G

Exhibit G – U.S. Patent No. 9,859,202 (Accused Smartphones)
"1. A structure, comprising:"

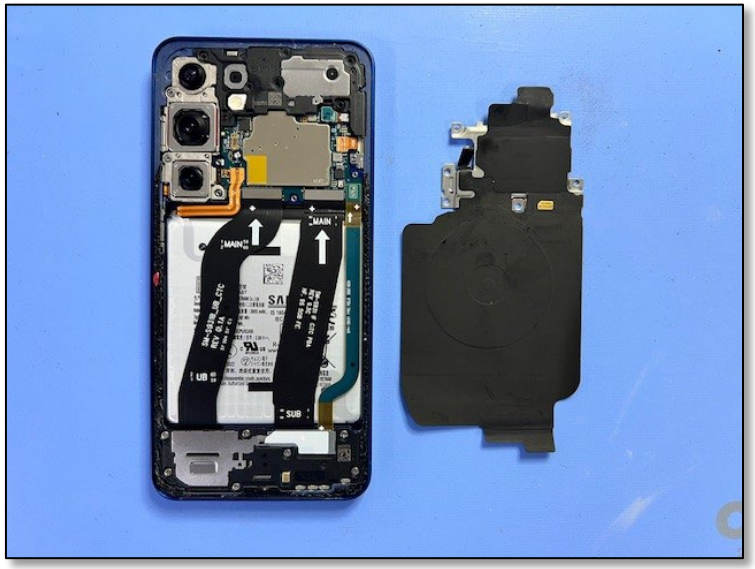
'202 Claim 1	Elements in Accused Smartphones
[1-pre] A structure, comprising:	To the extent the preamble is limiting, Samsung's Accused Smartphones[1] comprise a structure. *E.g.*, Samsung's Accused Smartphones incorporate structures, such as motherboards (sometimes also referred to as "motherboards"). The motherboards in Samsung's Accused Smartphones contain integrated circuits (sometimes also referred to as "chips"). The motherboard performs many core functions of Samsung's Accused Smartphones. (showing the specification of a Samsung Galaxy S25). *See* GSMARENA, *Specifications*, available at https://www.gsmarena.com/samsung_galaxy_S25+-13609.php (last visited February 8, 2026).

NETWORK	Technology	GSM / CDMA / HSPA / EVDO / LTE / 5G
LAUNCH	Announced	2025, January 22
	Status	Available. Released 2025, February 03
BODY	Dimensions	158.4 x 75.8 x 7.3 mm (6.24 x 2.98 x 0.29 in)
	Weight	190 g (6.70 oz)
	Build	Glass front (Gorilla Glass Victus 2), glass back (Gorilla Glass Victus 2), aluminum frame
	SIM	· Nano-SIM + Nano-SIM + eSIM + eSIM (max 2 at a time) - INT
		· Nano-SIM + eSIM + eSIM (max 2 at a time) - USA
		· Nano-SIM + Nano-SIM - CN
		IP68 dust tight and water resistant (immersible up to 1.5m for 30 min)
		Armor aluminum 2 frame
DISPLAY	Type	Dynamic LTPO AMOLED 2X, 120Hz, HDR10+, 2600 nits (peak)
	Size	6.7 inches, 110.2 cm² (~91.8% screen-to-body ratio)
	Resolution	1440 x 3120 pixels, 19.5:9 ratio (~513 ppi density)
	Protection	Corning Gorilla Glass Victus 2, Mohs level 5
PLATFORM	OS	Android 15, up to 7 major Android upgrades, One UI 8
	Chipset	Qualcomm SM8750-AC Snapdragon 8 Elite (3 nm)
	CPU	Octa-core (2x4.47 GHz Oryon V2 Phoenix L + 6x3.53 GHz Oryon V2 Phoenix M)
	GPU	Adreno 830 (1200 MHz)
MEMORY	Card slot	No
	Internal	256GB 12GB RAM, 512GB 12GB RAM
		UFS 4.0
MAIN CAMERA	Triple	50 MP, f/1.8, 24mm (wide), 1/1.56", 1.0µm, dual pixel PDAF, OIS
		10 MP, f/2.4, 67mm (telephoto), 1/3.94", 1.0µm, PDAF, OIS, 3x optical zoom
		12 MP, f/2.2, 13mm, 120° (ultrawide), 1/2.55" 1.4µm, Super Steady video
	Features	Best Face, LED flash, auto-HDR, panorama
	Video	8K@24/30fps, 4K@30/60fps, 1080p@30/60/120/240fps, 10-bit HDR, HDR10+, stereo sound rec., gyro-EIS
SELFIE CAMERA	Single	12 MP, f/2.2, 26mm (wide), 1/3.2", 1.12µm, dual pixel PDAF
	Features	HDR, HDR10+
	Video	4K@30/60fps, 1080p@30fps
SOUND	Loudspeaker	Yes, with stereo speakers
	3.5mm jack	No
		High-bitrate audio support
COMMS	WLAN	Wi-Fi 802.11 a/b/g/n/ac/6e/7, tri-band, Wi-Fi Direct
	Bluetooth	5.4, A2DP, LE
	Positioning	GPS, GLONASS, BDS, GALILEO, QZSS
	NFC	Yes
	Radio	No
	USB	USB Type-C 3.2, DisplayPort 1.2, OTG
FEATURES	Sensors	Fingerprint (under display, ultrasonic), accelerometer, gyro, proximity, compass, barometer
		Samsung DeX, Samsung Wireless DeX (desktop experience support)
		Ultra Wideband (UWB) support
BATTERY	Type	Li-Ion 4900 mAh
	Charging	45W wired, PD3.0, 65% in 30 min
		15W wireless (Qi2 Ready)
		4.5W reverse wireless

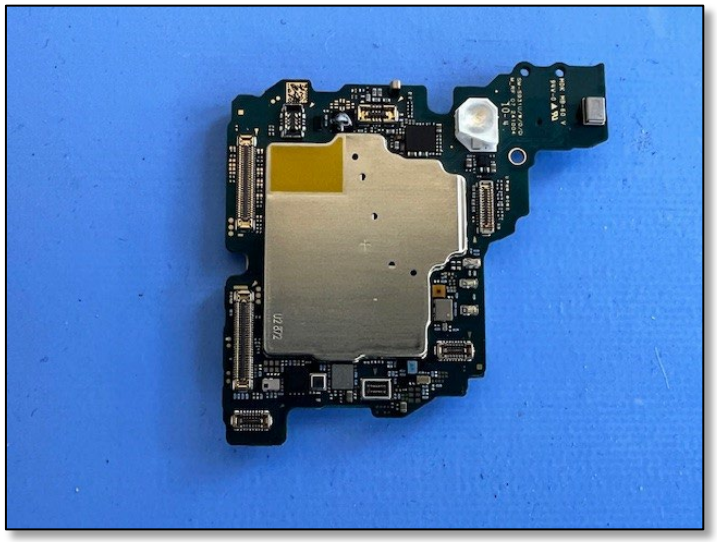
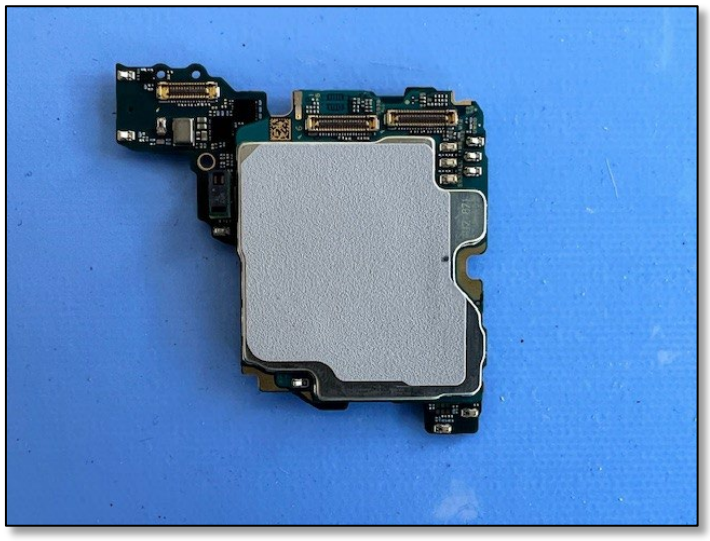
[1] The term Accused Smartphones is defined as those smartphone products accused of infringement in the cover pleading of these contentions, and those further identified during discovery.

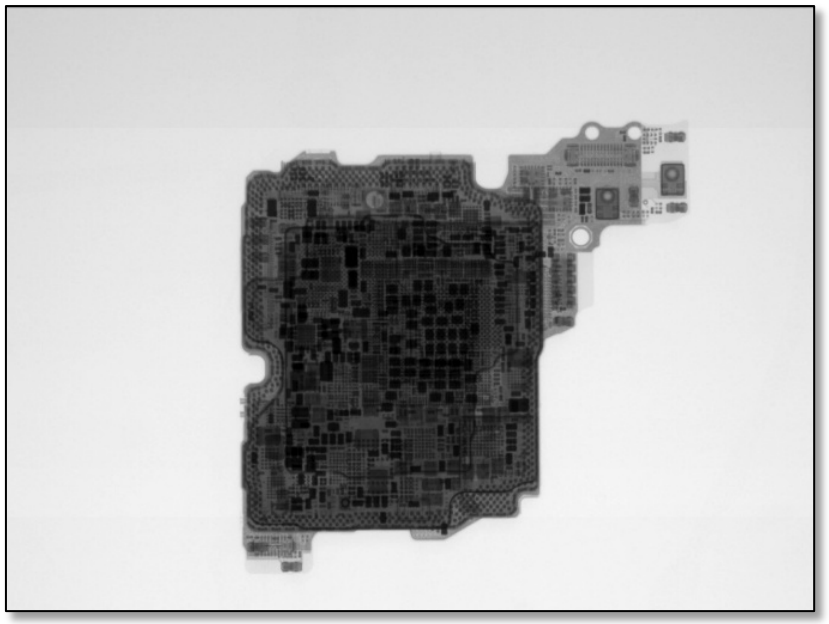
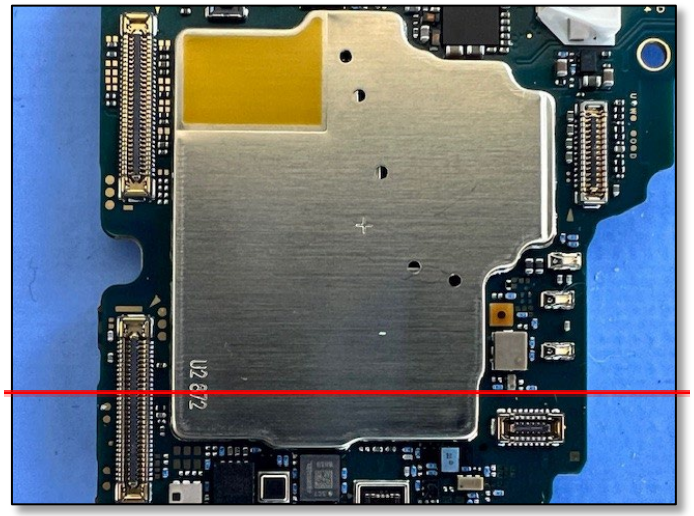
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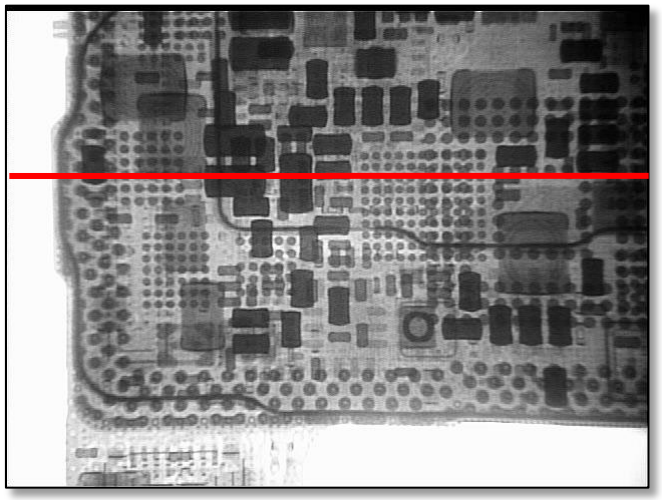
'202 Claim 1	Elements in Accused Smartphones
	 (showing top-side view of a Samsung Galaxy S25)  (showing bottom-side view of a Samsung Galaxy S25)

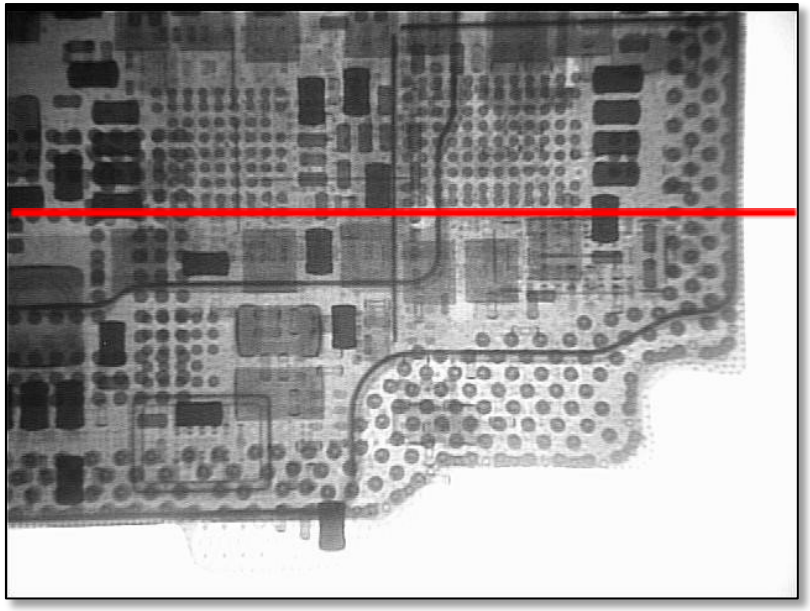
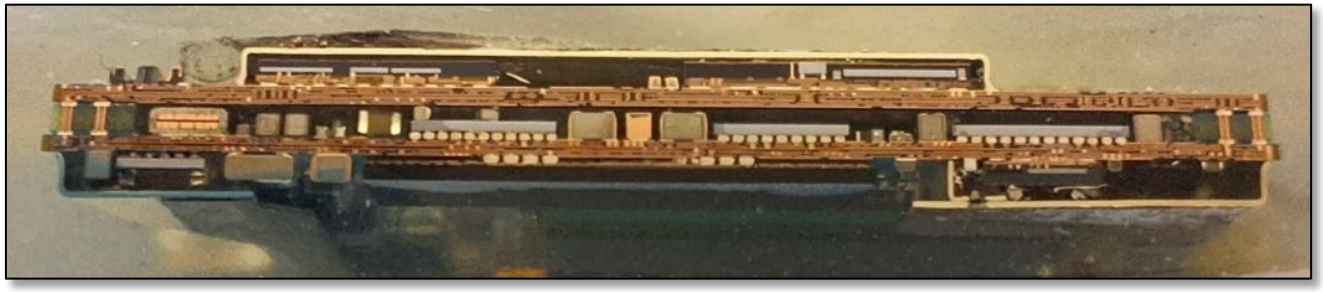
'202 Claim 1	Elements in Accused Smartphones
	 (showing disassembled example Samsung Galaxy S25)  (showing disassembled example Samsung Galaxy S25)

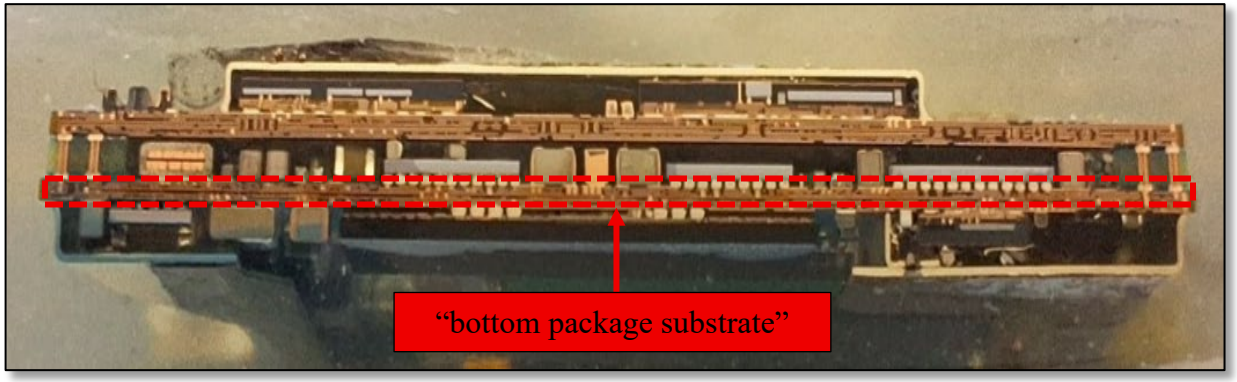
Samsung v. TopWire | IPR2026-00324
CONFIDENTIAL
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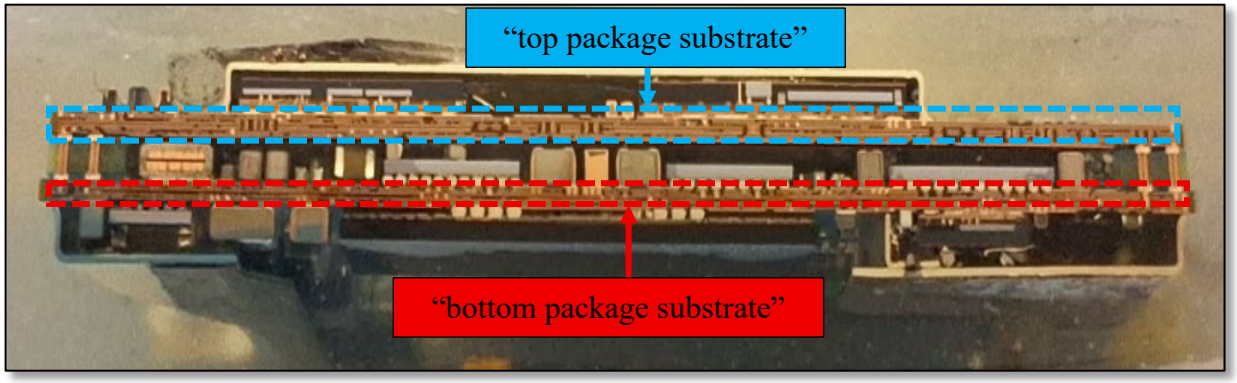
'202 Claim 1	Elements in Accused Smartphones
	For example, the Samsung Galaxy S25 comprises a structure:  (showing top-side view of a motherboard in a Samsung Galaxy S25)  (showing bottom-side view of a motherboard in a Samsung Galaxy S25)

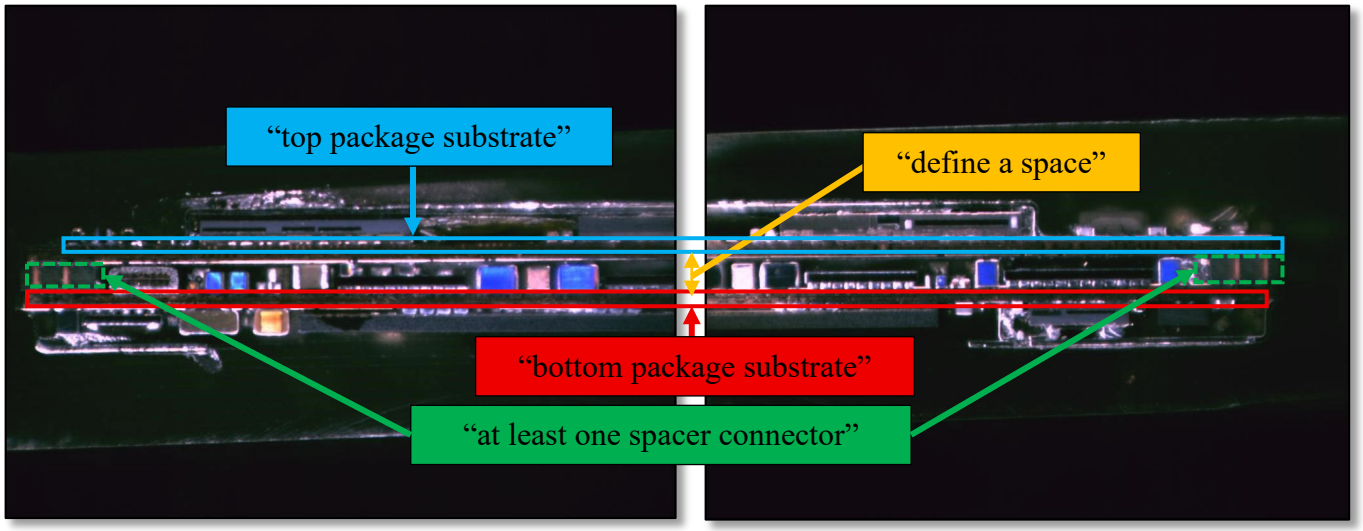
'202 Claim 1	Elements in Accused Smartphones
	 (x-ray image of a motherboard in a Samsung Galaxy S25)  (showing top-side view of a motherboard with a red cross-section area in a Samsung Galaxy S25)

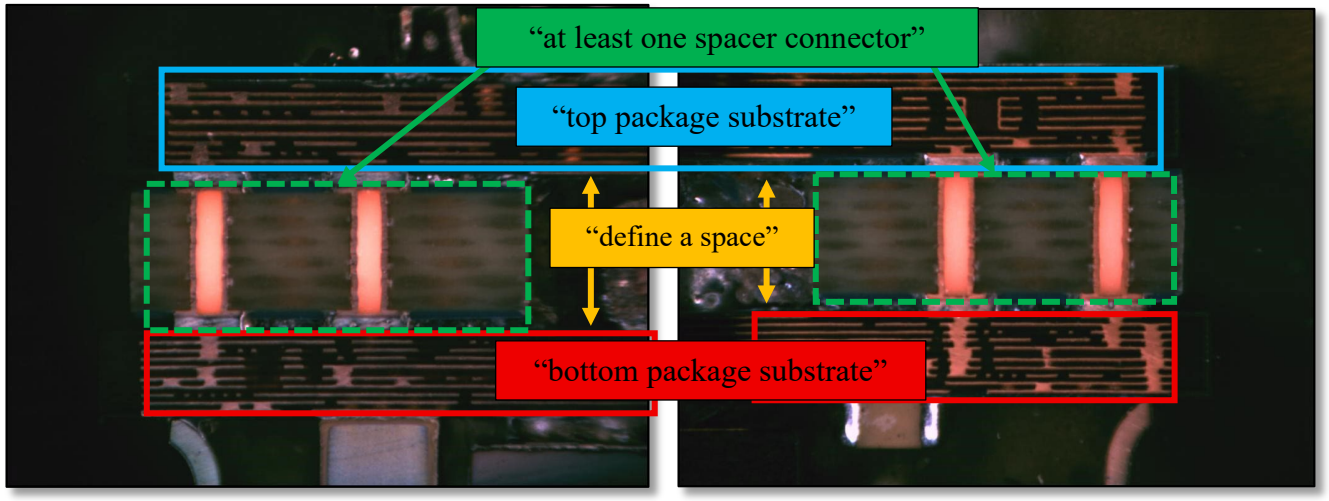
'202 Claim 1	Elements in Accused Smartphones
	 (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S25)  (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S25)

'202 Claim 1	Elements in Accused Smartphones
	 (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy S25)  (optical view showing a cross-section view of a motherboard in a Samsung Galaxy S25)

'202 Claim 1	Elements in Accused Smartphones
[1a] a bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate. For example, the Samsung Galaxy S25 comprises a bottom package substrate:  (optical view showing a bottom package substrate)

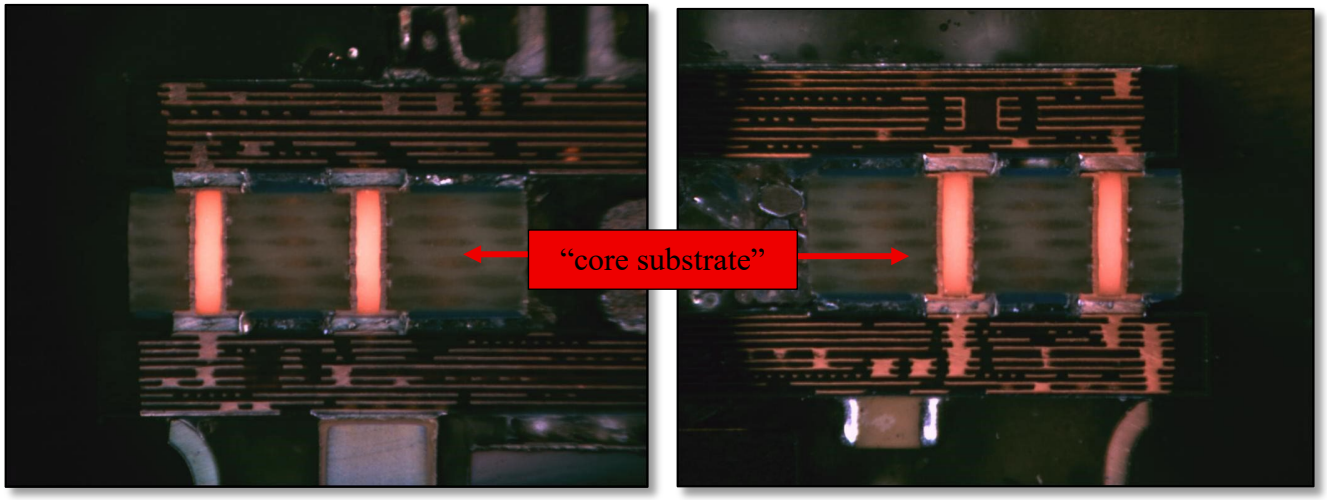
'202 Claim 1	Elements in Accused Smartphones
[1b] a top package substrate stacked on top of the bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top package substrate stacked on top of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate, stacked on top of the bottom package substrate. For example, the Samsung Galaxy S25 comprises a top package substrate stacked on top of the bottom package substrate:  (optical view showing a top package substrate stacked on top of the bottom package substrate)

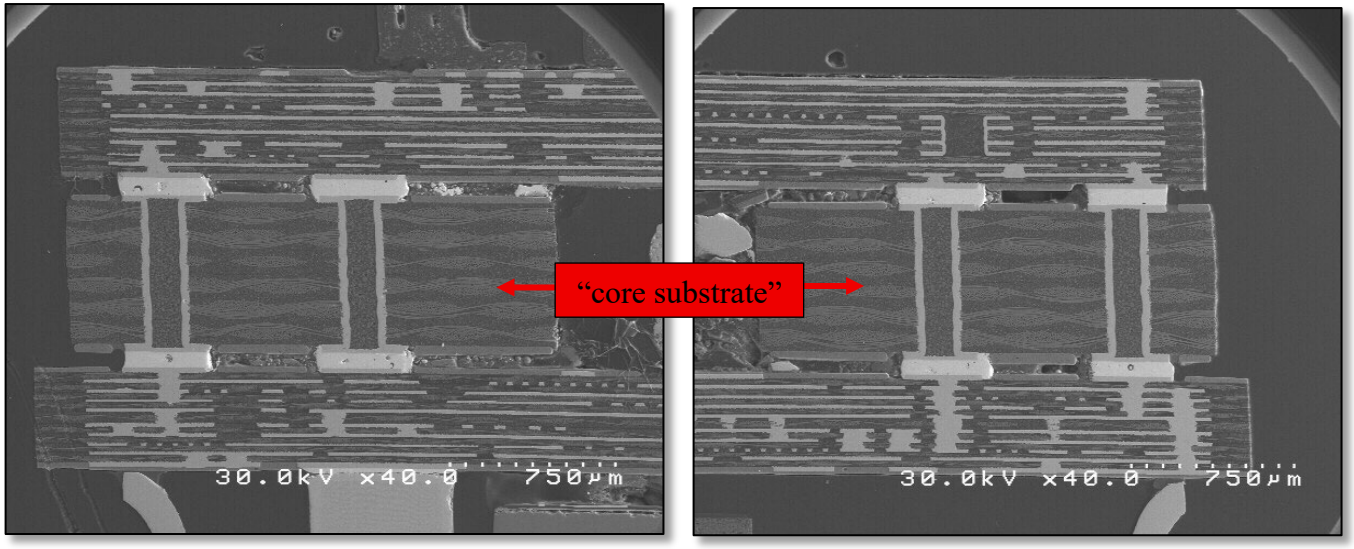
'202 Claim 1	Elements in Accused Smartphones
[1c] at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector, such as a metallic structure or any other suitable spacer connector. The at least one spacer connector is interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. Therefore, the at least one spacer connector separates the top package substrate from the bottom package substrate. For example, the Samsung Galaxy S25 comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate:  (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

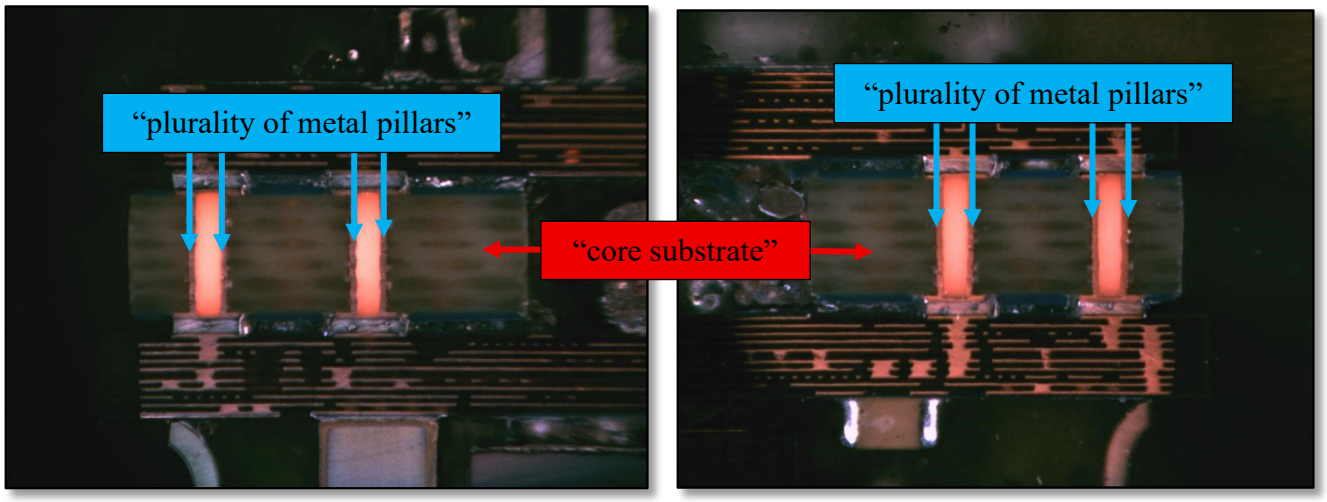
'202 Claim 1	Elements in Accused Smartphones
	 (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

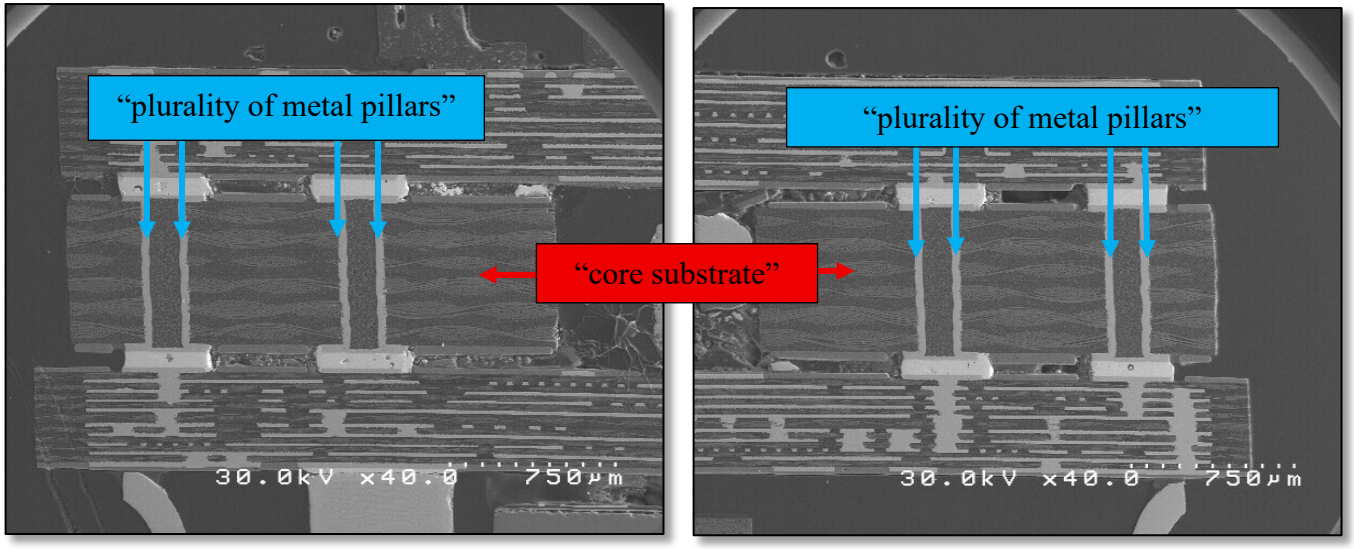
Samsung v. TopWire | IPR2026-00324
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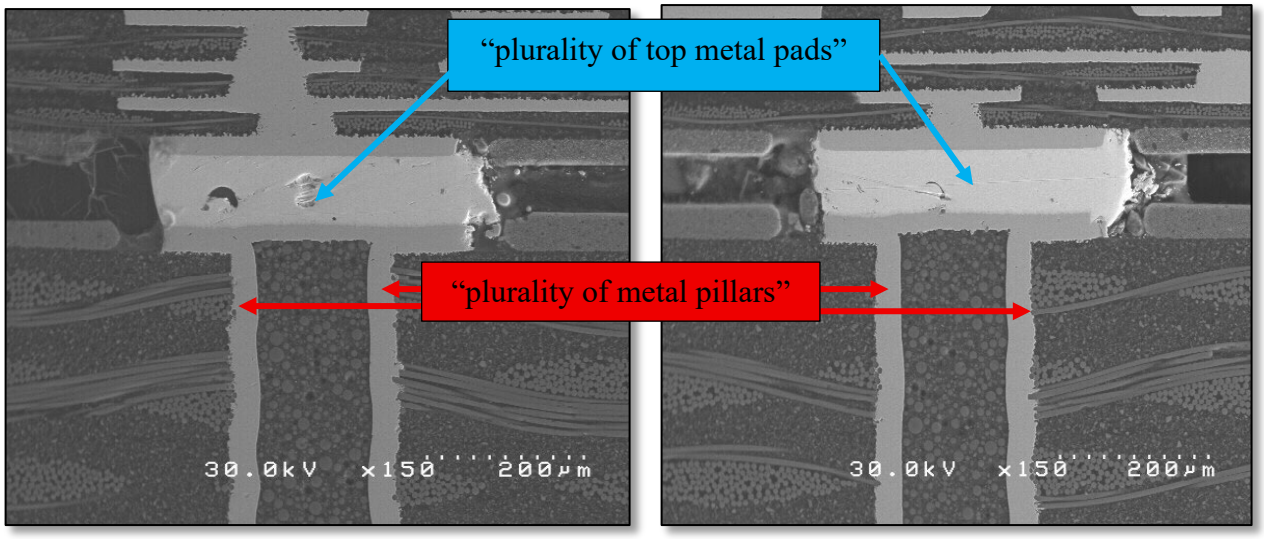
'202 Claim 1	Elements in Accused Smartphones
[1d-pre] wherein the spacer connector comprises:	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. See below.

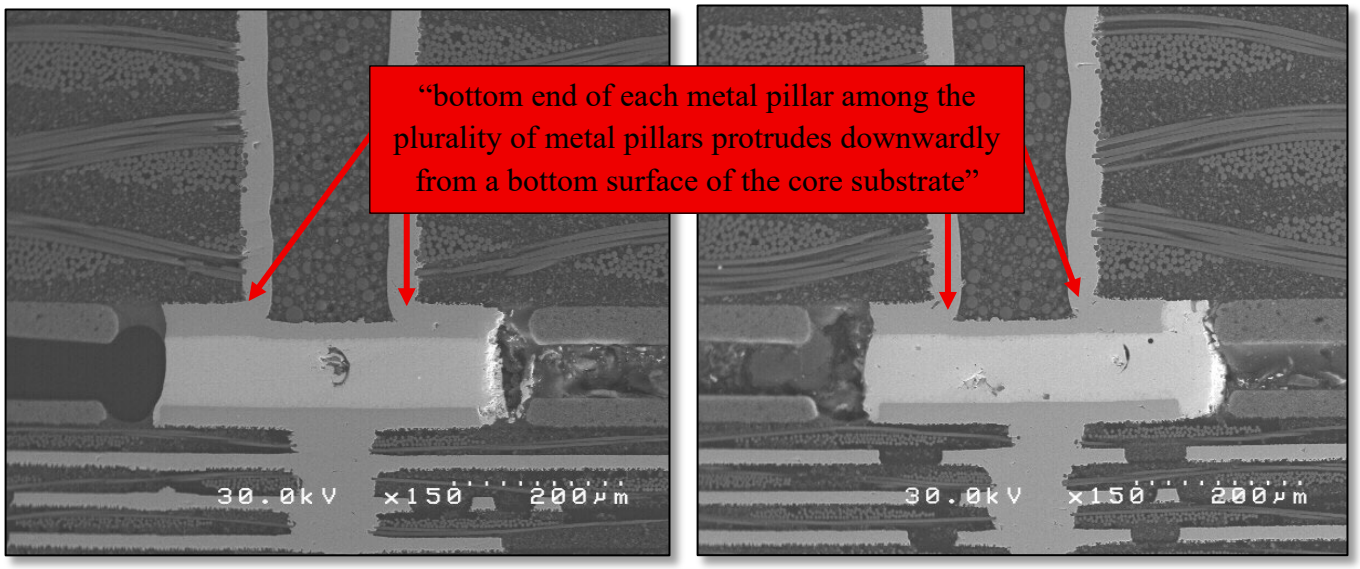
'202 Claim 1	Elements in Accused Smartphones
[1d-1] a core substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a core substrate, such as a silicon substrate or any other suitable core substrate. For example, the at least one spacer connector of the Samsung Galaxy S25 comprises a core substrate:  (optical view showing the core substrate)

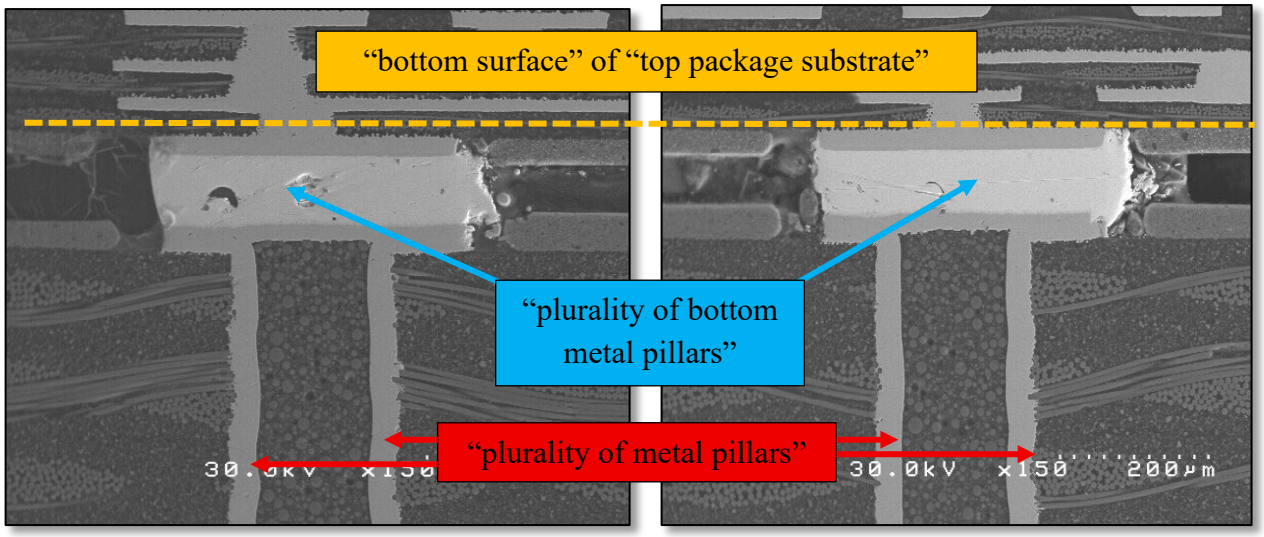
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the core substrate)

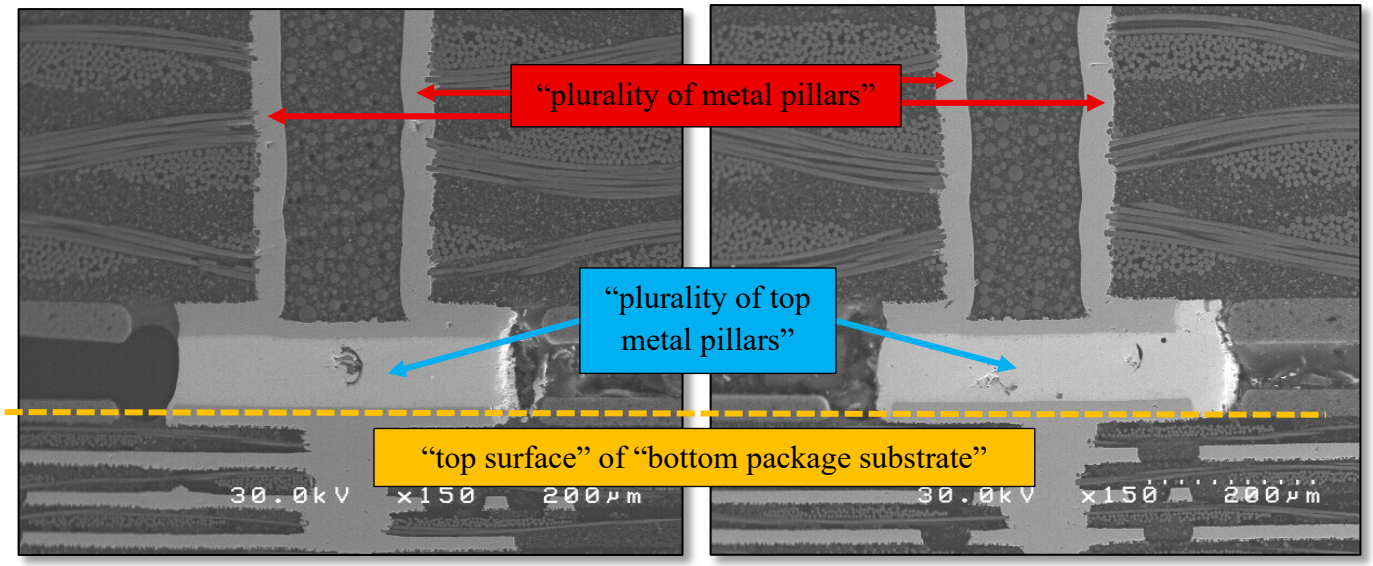
'202 Claim 1	Elements in Accused Smartphones
[1d-2] a plurality of metal pillars, each passing through the core substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of metal pillars, each passing through the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of metal pillars, such as copper pillars or any other suitable metal pillars. Each of the plurality of metal pillars passes through (*e.g.*, intersects) the core substrate. For example, the at least one spacer connector of the Samsung Galaxy S25 comprises a plurality of metal pillars, each passing through the core substrate:  (optical view showing the plurality of metal pillars, each passing through the core substrate)

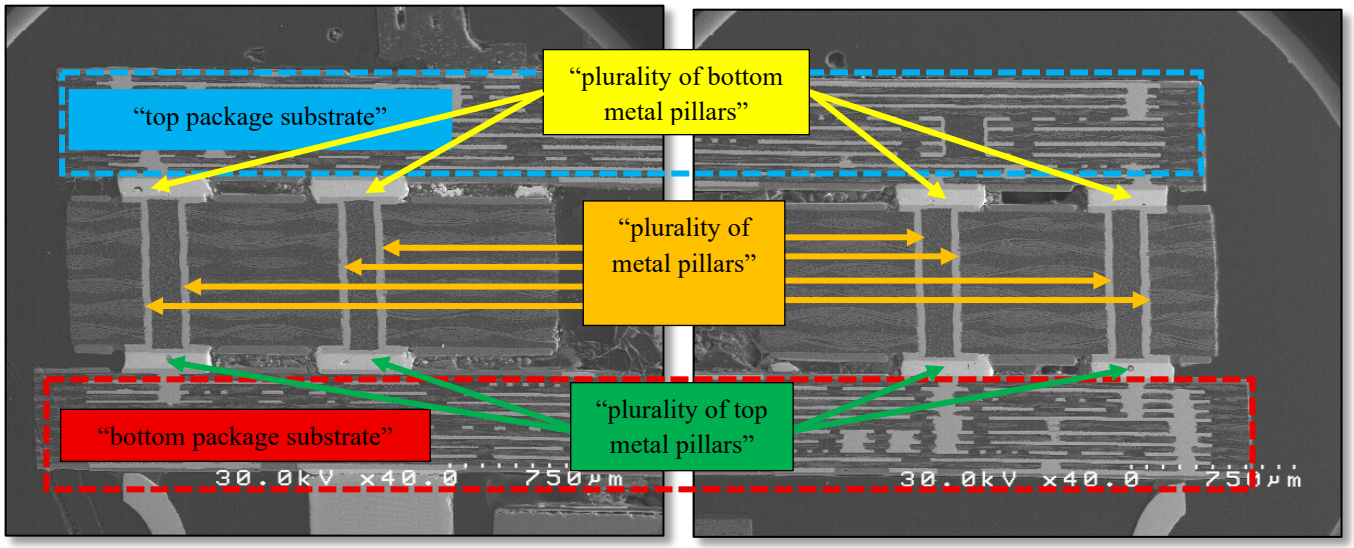
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the plurality of metal pillars, each passing through the core substrate)

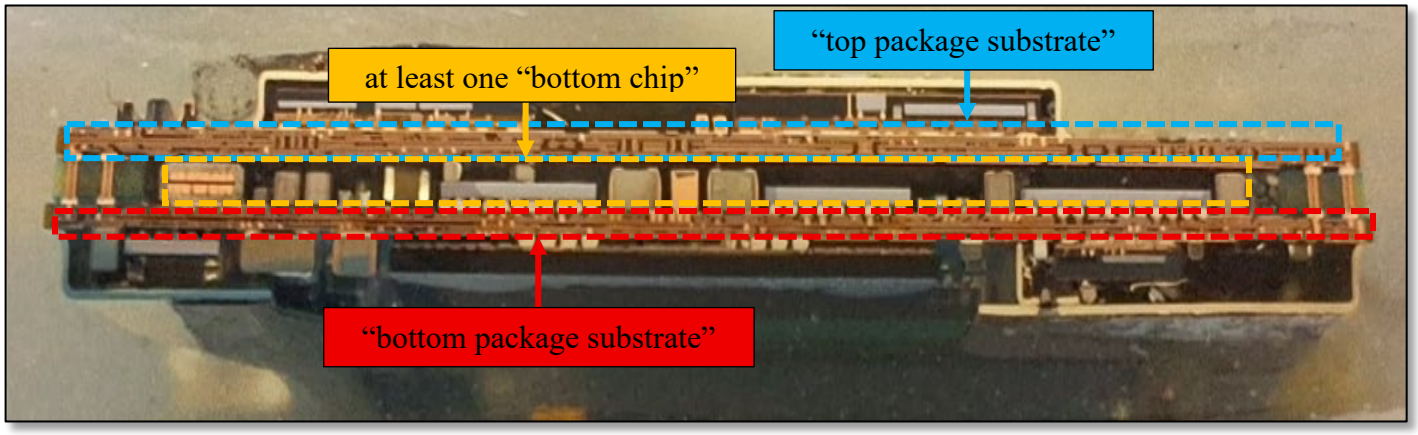
'202 Claim 1	Elements in Accused Smartphones
[1d-3] a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of top metal pads, such as copper metal pads or any other suitable metal pads. Each of the plurality of metal pads are connected to a top end of a corresponding metal pillar among the plurality of metal pillars. For example, the at least one spacer connector of the Samsung Galaxy S25 comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars: he plurality of metal pillars:  (scanning electron microscope ("SEM") view showing the plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars)

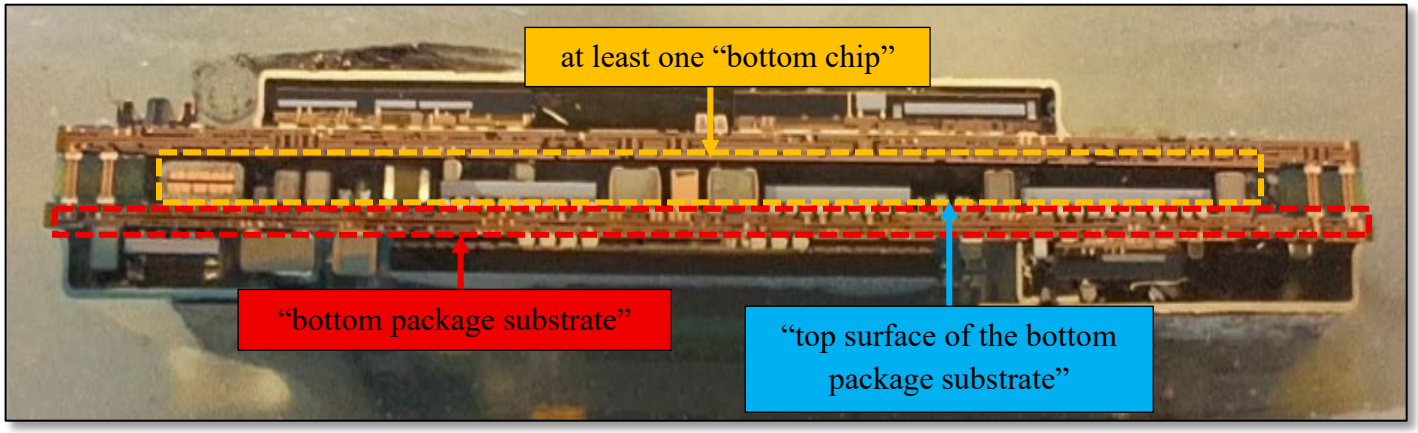
'202 Claim 1	Elements in Accused Smartphones
[1d-4] wherein a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. In the at least one spacer connector of Samsung's Accused Smartphones, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. In the at least one spacer connector, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from (*e.g.*, extends past) a bottom surface of the core substrate. For example, in the at least one spacer connector of the Samsung Galaxy S25, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate:  (scanning electron microscope ("SEM") view showing the bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate)

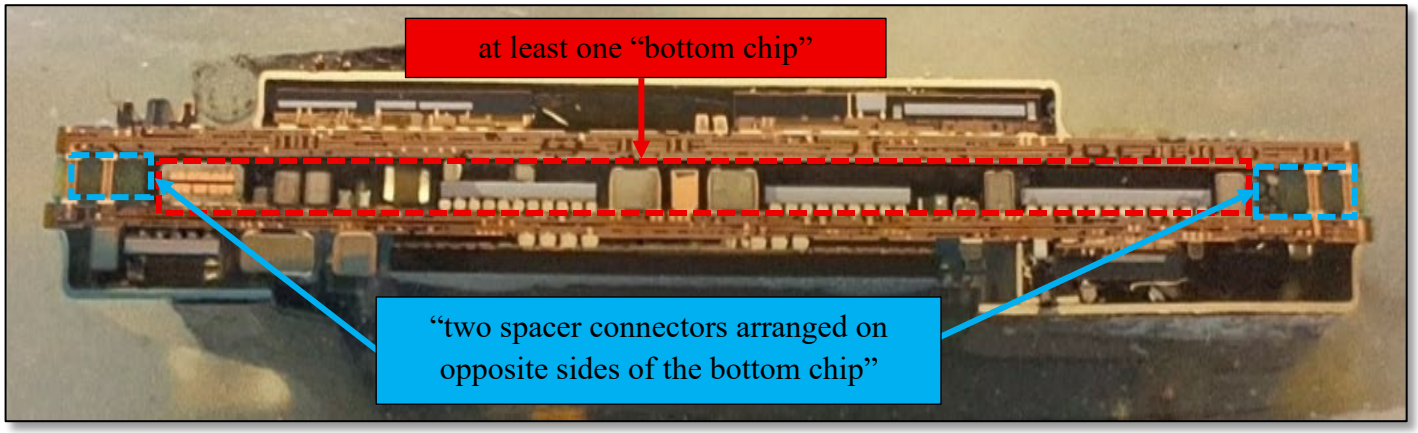
'202 Claim 1	Elements in Accused Smartphones
[1e] the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate has a bottom surface. Additionally, a plurality of bottom metal pillars, such as tin metal pillars or any other suitable bottom metal pillars, are connected to the bottom surface of the top package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the top package substrate of the Samsung Galaxy S25 has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

'202 Claim 1	Elements in Accused Smartphones
[1f] the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom package substrate of Samsung's Accused Smartphones has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom package substrate has a top surface. Additionally, a plurality of top metal pillars, such as tin metal pillars or any other suitable top metal pillars, are connected to the top surface of the bottom package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the bottom package substrate of the Samsung Galaxy S25 has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

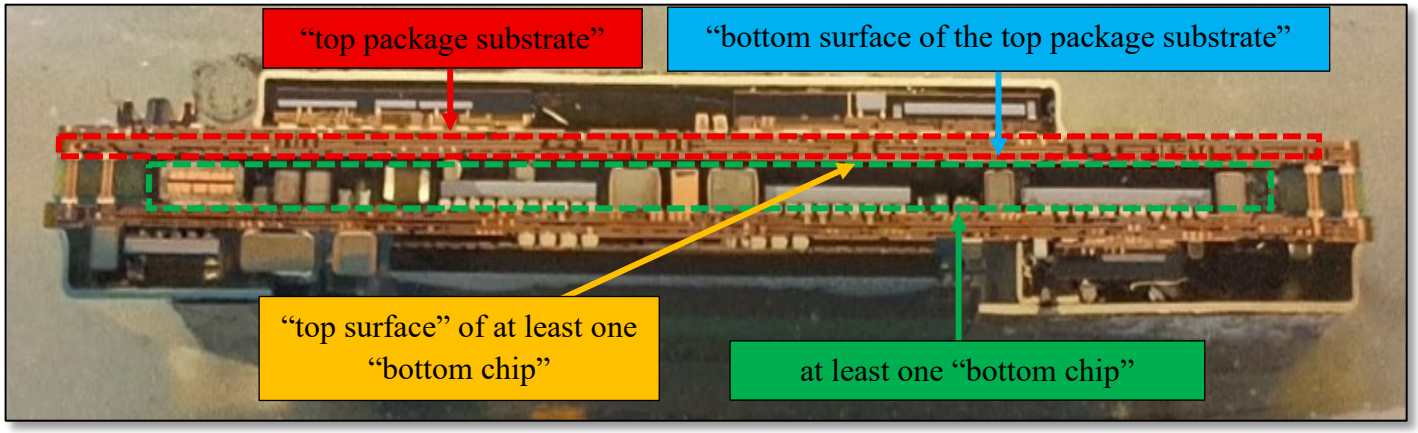
'202 Claim 1	Elements in Accused Smartphones
[1g] the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate is electrically coupled to the bottom package substrate. Additionally, current flows between the top package substrate and the bottom package substrate via the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate, all of which are electrically coupled together. For example, the top package substrate of the Samsung Galaxy S25 is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate:  (scanning electron microscope ("SEM") view showing the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1h] a bottom chip arranged in the space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, arranged between the space between the bottom package substrate and the top package substrate formed by the at least one spacer connector. For example, the Samsung Galaxy S25 comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate:  (optical view showing the bottom chip arranged in the space between the bottom package substrate and the top package substrate)

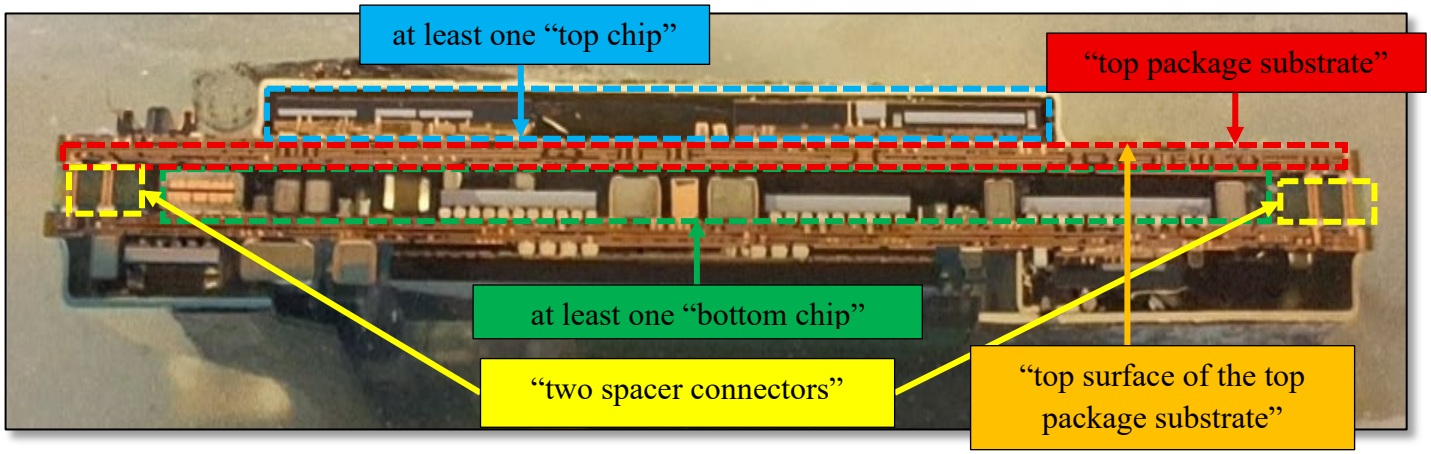
'202 Claim 1	Elements in Accused Smartphones
[1i] the bottom chip is mounted to the top surface of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged mounted to the top surface of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, mounted to the top surface of the bottom package substrate. For example, the bottom chip of the Samsung Galaxy S25 is mounted to the top surface of the bottom package substrate:  (optical view showing the bottom chip mounted to the top surface of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1j] the at least one spacer connector comprises two spacer connectors arranged on opposite sides of the bottom chip.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises two spacer connectors arranged on opposite sides of the bottom chip. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the at least one spacer connector includes two spacer connectors arranged on opposite sides of the bottom chip. For example, the at least one spacer connector of the Samsung Galaxy S25 comprises two spacer connectors arranged on opposite sides of the bottom chip:  (optical view showing the at least one spacer connector comprising two spacer connectors arranged on opposite sides of the bottom chip)

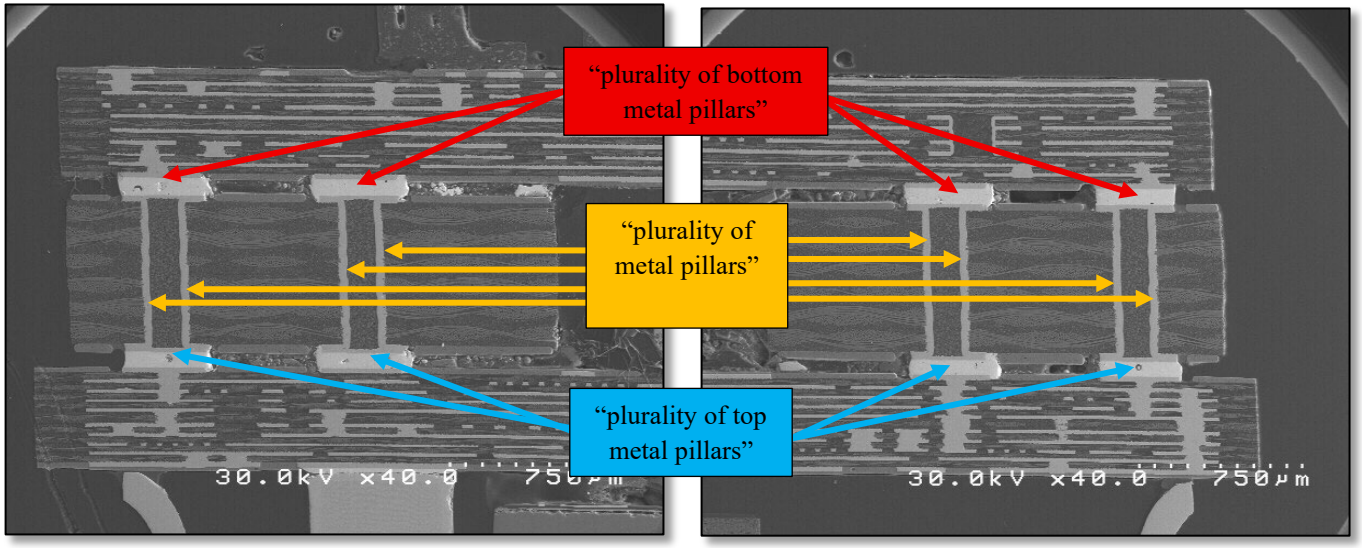
"2. The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate."

'202 Claim 2	Elements in Accused Smartphones
[2] The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom chip of Samsung's Accused Smartphones has a top surface that is spaced downwardly from the bottom surface of the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom chip has a top surface that is spaced downwardly from the bottom surface of the top package substrate. For example, in the Samsung Galaxy S25, a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate:  (optical view showing the top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate)

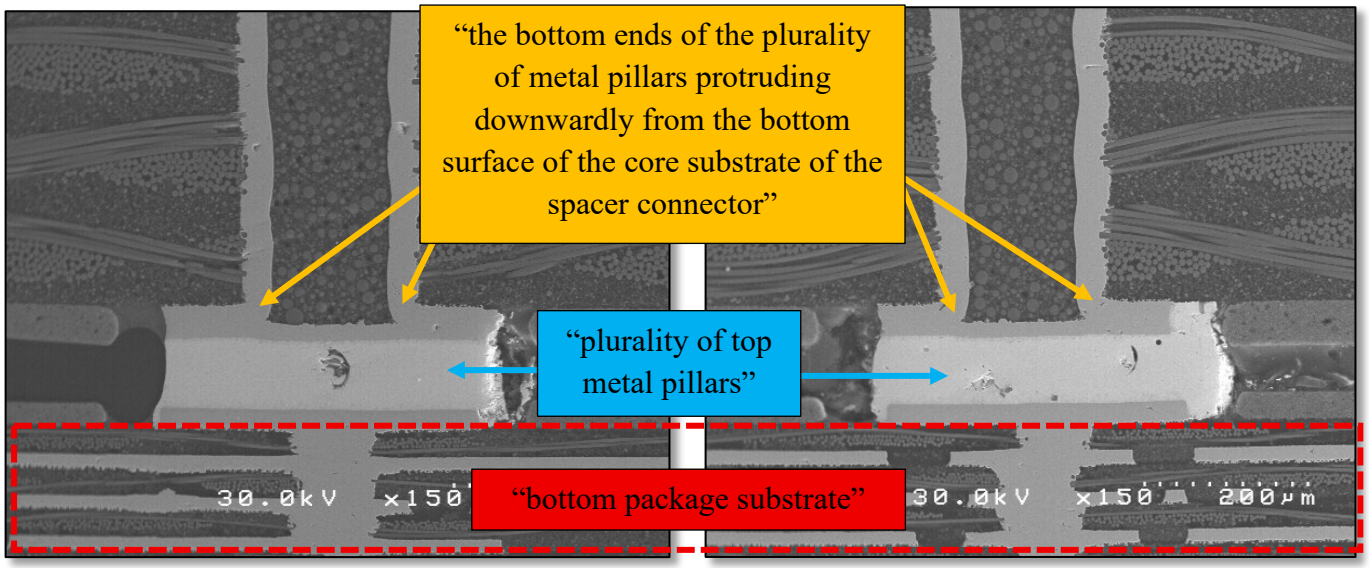
"3. The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors."

'202 Claim 3	Elements in Accused Smartphones
[3] The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors.	TopWire incorporates the disclosures set forth for Claims 1 and 2 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top chip, such as a memory chip or any other suitable top chip, mounted to the top surface of the top package substrate. The top package substrate is stacked on top of the bottom package substrate such that the top chip overlaps the bottom chip and each of the two spacer connectors. For example, the Samsung Galaxy S25 comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors:  (optical view showing the top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors)

"4. The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate."

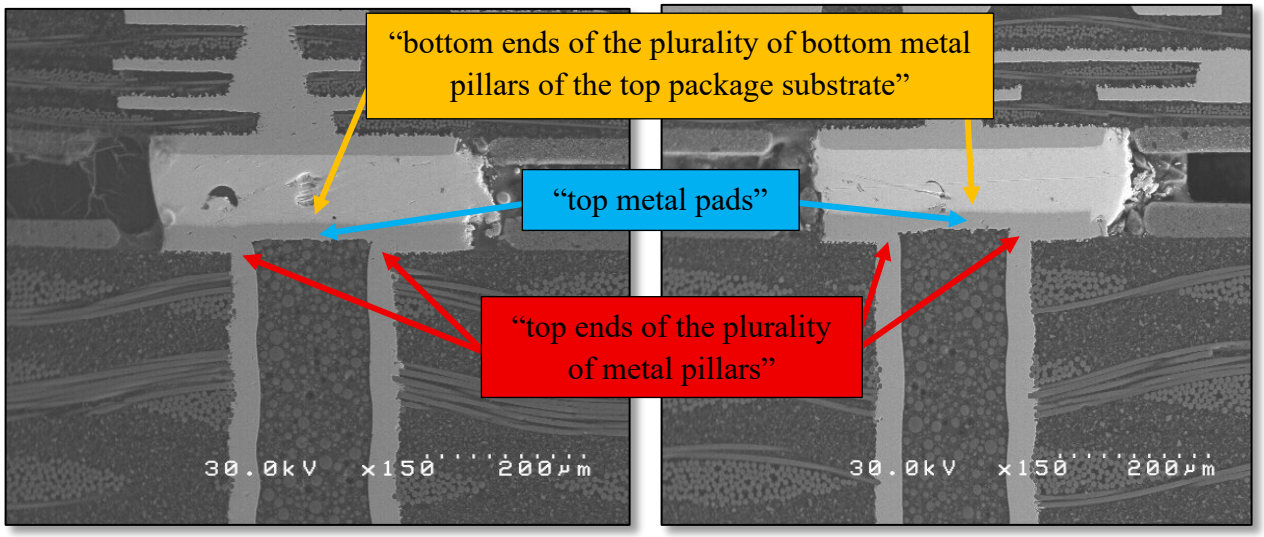
'202 Claim 4	Elements in Accused Smartphones
[4] The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. Each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned (*e.g.*, vertically aligned) with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. For example, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy S25 is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate:  (scanning electron microscope ("SEM") view showing each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate)

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
[6a] The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in Samsung's Accused Smartphones are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector. The plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. For example, the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in the Samsung Galaxy S25 are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate: 

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
	(scanning electron microscope ("SEM") view showing the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate)

'202 Claim 6	Elements in Accused Smartphones
[**6b**] bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector.	TopWire incorporates the disclosures set forth for Claims 1, 4, and 6 as if set forth herein. The bottom ends of the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the bottom ends of the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy S25 are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:  (scanning electron microscope ("SEM") view showing bottom ends of the plurality of bottom metal pillars of the top package substrate that are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

'202 Claim 9	Elements in Accused Smartphones
[9] The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The spacer connector in Samsung's Accused Smartphones further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a spacer connector. The spacer connector further includes a plurality of bottom metal pads, such as copper metal pads or any other suitable bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars. The bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the spacer connector in the Samsung Galaxy S25 further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

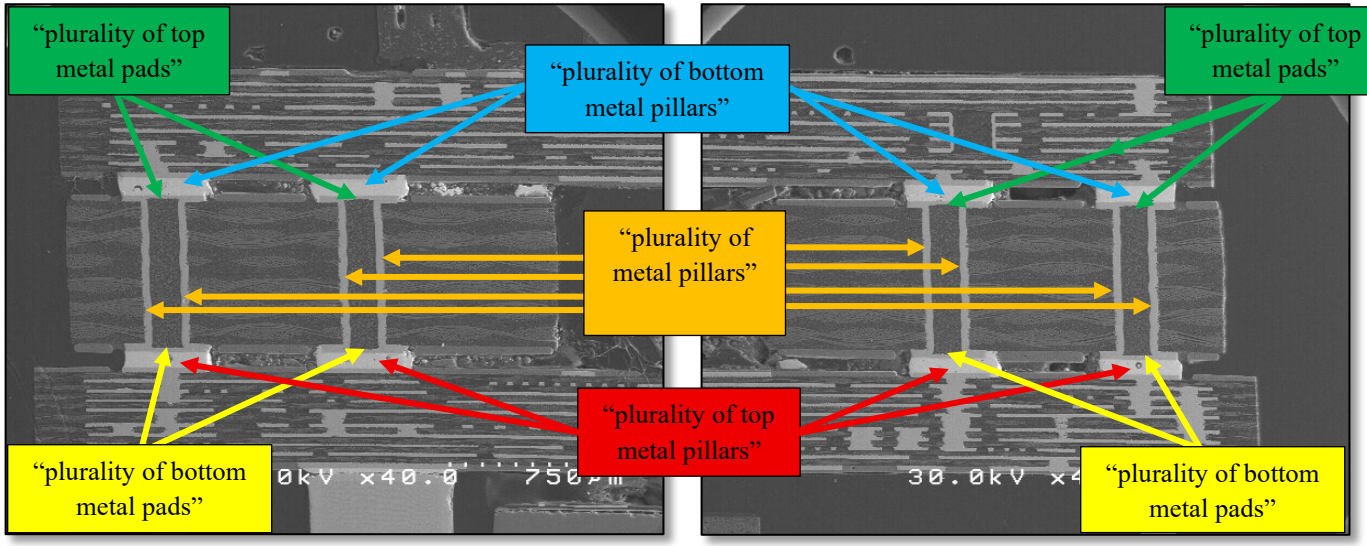
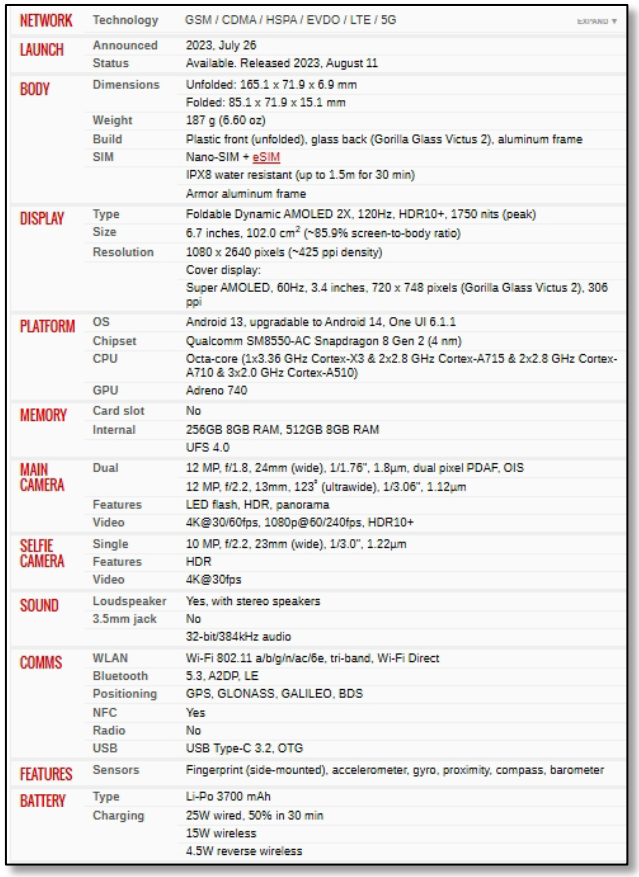
'202 Claim 9	Elements in Accused Smartphones
the corresponding top metal pads of the spacer connector.	 (scanning electron microscope ("SEM") view showing the spacer connector further comprising a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars being connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate being connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

EXHIBIT H

'202 Claim 1	Elements in Accused Smartphones
[1-pre] A structure, comprising:	To the extent the preamble is limiting, Samsung's Accused Smartphones[1] comprise a structure. *E.g.*, Samsung's Accused Smartphones incorporate structures, such as motherboards (sometimes also referred to as "logic boards"). The motherboards in Samsung's Accused Smartphones contain integrated circuits (sometimes also referred to as "chips"). The motherboard performs many core functions of Samsung's Accused Smartphones.  (showing the specification of a Samsung Galaxy Z Flip5). *See* GSMARENA, *Specifications*, available at https://www.gsmarena.com/samsung_galaxy_Z_flip5-12252.php (last visited February 8, 2026).

NETWORK	Technology	GSM / CDMA / HSPA / EVDO / LTE / 5G
LAUNCH	Announced	2023, July 26
	Status	Available. Released 2023, August 11
BODY	Dimensions	Unfolded: 165.1 x 71.9 x 6.9 mm
		Folded: 85.1 x 71.9 x 15.1 mm
	Weight	187 g (6.60 oz)
	Build	Plastic front (unfolded), glass back (Gorilla Glass Victus 2), aluminum frame
	SIM	Nano-SIM + eSIM
		IPX8 water resistant (up to 1.5m for 30 min)
		Armor aluminum frame
DISPLAY	Type	Foldable Dynamic AMOLED 2X, 120Hz, HDR10+, 1750 nits (peak)
	Size	6.7 inches, 102.0 cm² (~85.9% screen-to-body ratio)
	Resolution	1080 x 2640 pixels (~425 ppi density)
		Cover display:
		Super AMOLED, 60Hz, 3.4 inches, 720 x 748 pixels (Gorilla Glass Victus 2), 306 ppi
PLATFORM	OS	Android 13, upgradable to Android 14, One UI 6.1.1
	Chipset	Qualcomm SM8550-AC Snapdragon 8 Gen 2 (4 nm)
	CPU	Octa-core (1x3.36 GHz Cortex-X3 & 2x2.8 GHz Cortex-A715 & 2x2.8 GHz Cortex-A710 & 3x2.0 GHz Cortex-A510)
	GPU	Adreno 740
MEMORY	Card slot	No
	Internal	256GB 8GB RAM, 512GB 8GB RAM
		UFS 4.0
MAIN CAMERA	Dual	12 MP, f/1.8, 24mm (wide), 1/1.76", 1.8µm, dual pixel PDAF, OIS
		12 MP, f/2.2, 13mm, 123° (ultrawide), 1/3.06", 1.12µm
	Features	LED flash, HDR, panorama
	Video	4K@30/60fps, 1080p@60/240fps, HDR10+
SELFIE CAMERA	Single	10 MP, f/2.2, 23mm (wide), 1/3.0", 1.22µm
	Features	HDR
	Video	4K@30fps
SOUND	Loudspeaker	Yes, with stereo speakers
	3.5mm jack	No
		32-bit/384kHz audio
COMMS	WLAN	Wi-Fi 802.11 a/b/g/n/ac/6e, tri-band, Wi-Fi Direct
	Bluetooth	5.3, A2DP, LE
	Positioning	GPS, GLONASS, GALILEO, BDS
	NFC	Yes
	Radio	No
	USB	USB Type-C 3.2, OTG
FEATURES	Sensors	Fingerprint (side-mounted), accelerometer, gyro, proximity, compass, barometer
BATTERY	Type	Li-Po 3700 mAh
	Charging	25W wired, 50% in 30 min
		15W wireless
		4.5W reverse wireless

[1] The term Accused Smartphones is defined as those smartphone products accused of infringement in the cover pleading of these contentions, and those further identified during discovery.

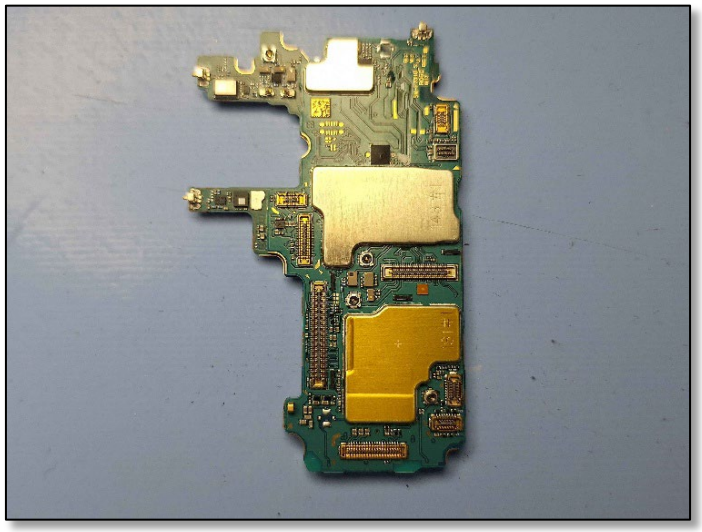
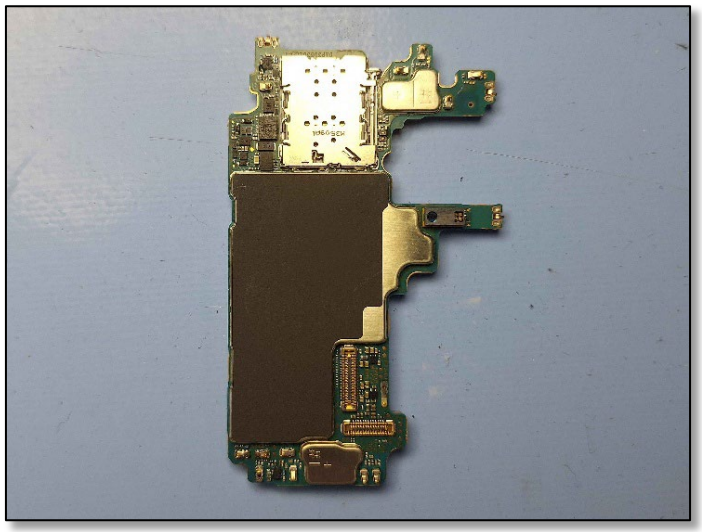
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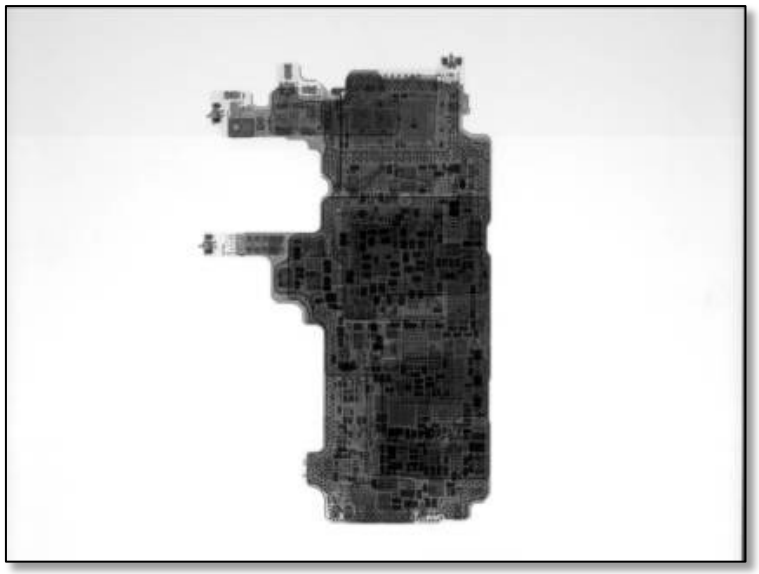
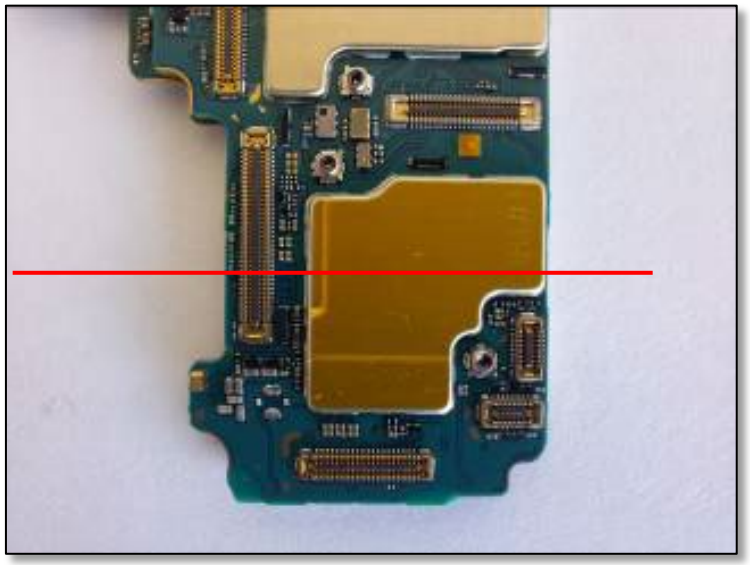
'202 Claim 1	Elements in Accused Smartphones
	 (showing a top-side view of a Samsung Galaxy Z Flip5)  (showing a bottom-side view of a Samsung Galaxy Z Flip5)

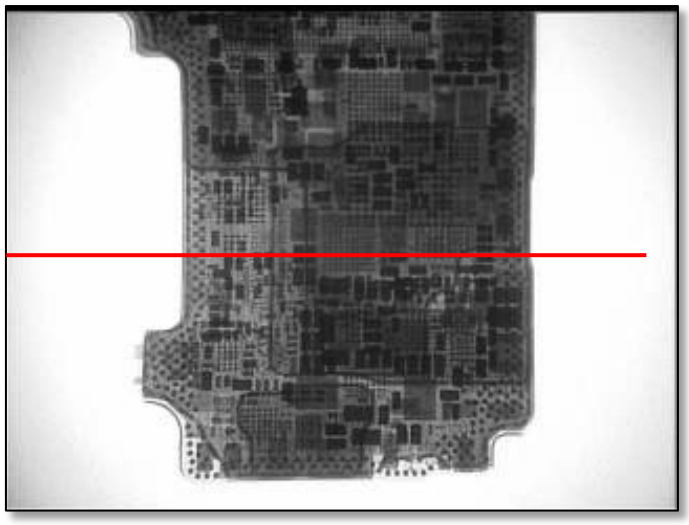
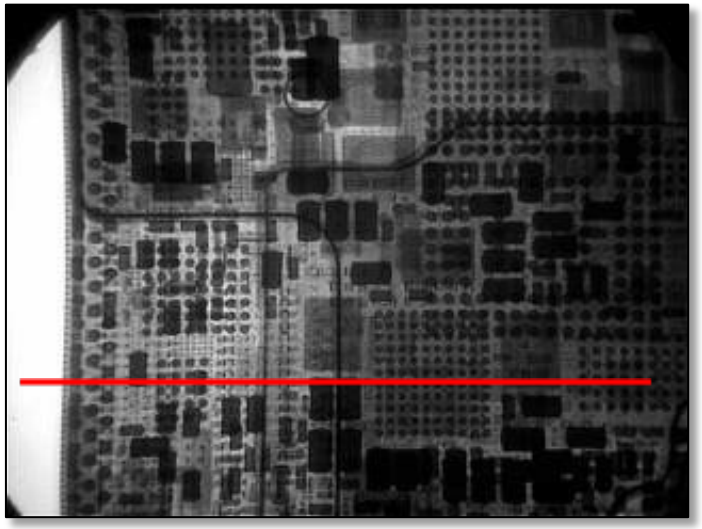
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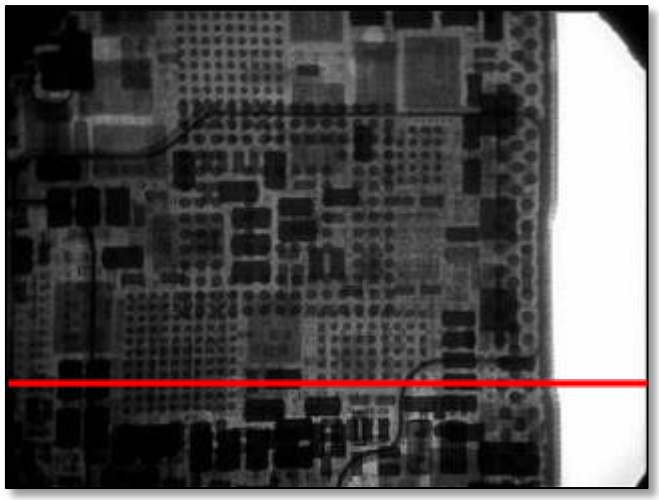
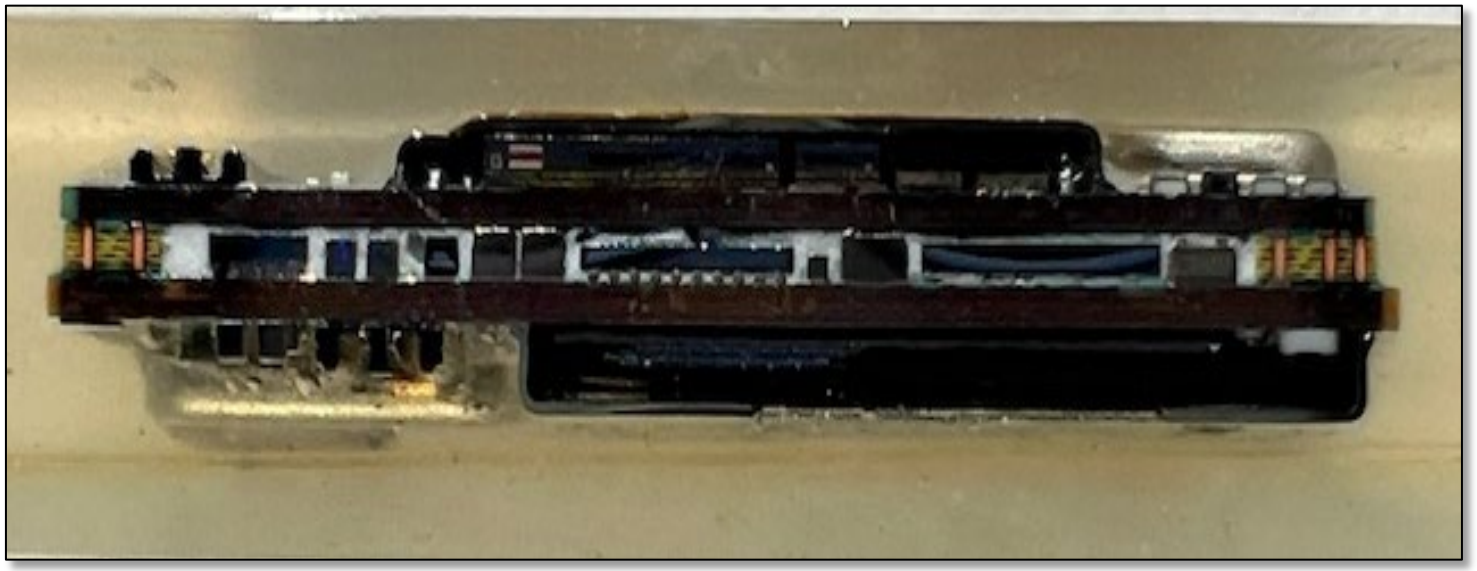
'202 Claim 1	Elements in Accused Smartphones
	 (showing a disassembled example Samsung Galaxy Z Flip5)  (showing a disassembled example Samsung Galaxy Z Flip5)

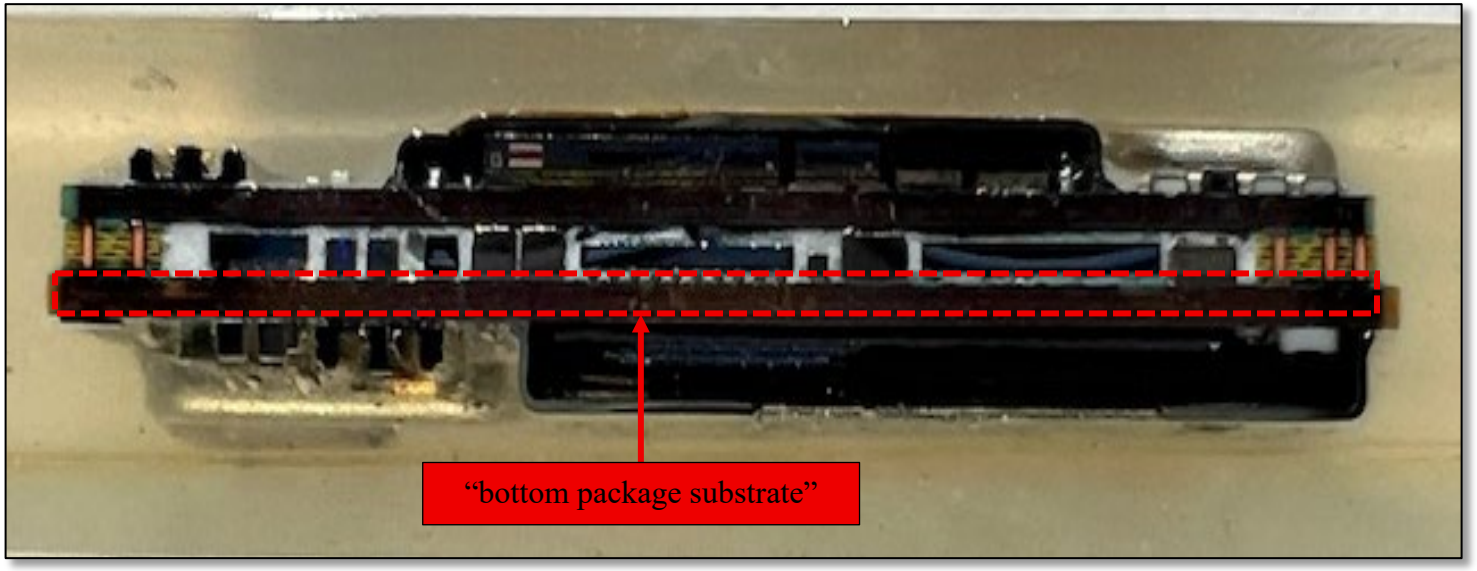
Samsung v. TopWire | IPR2026-00324
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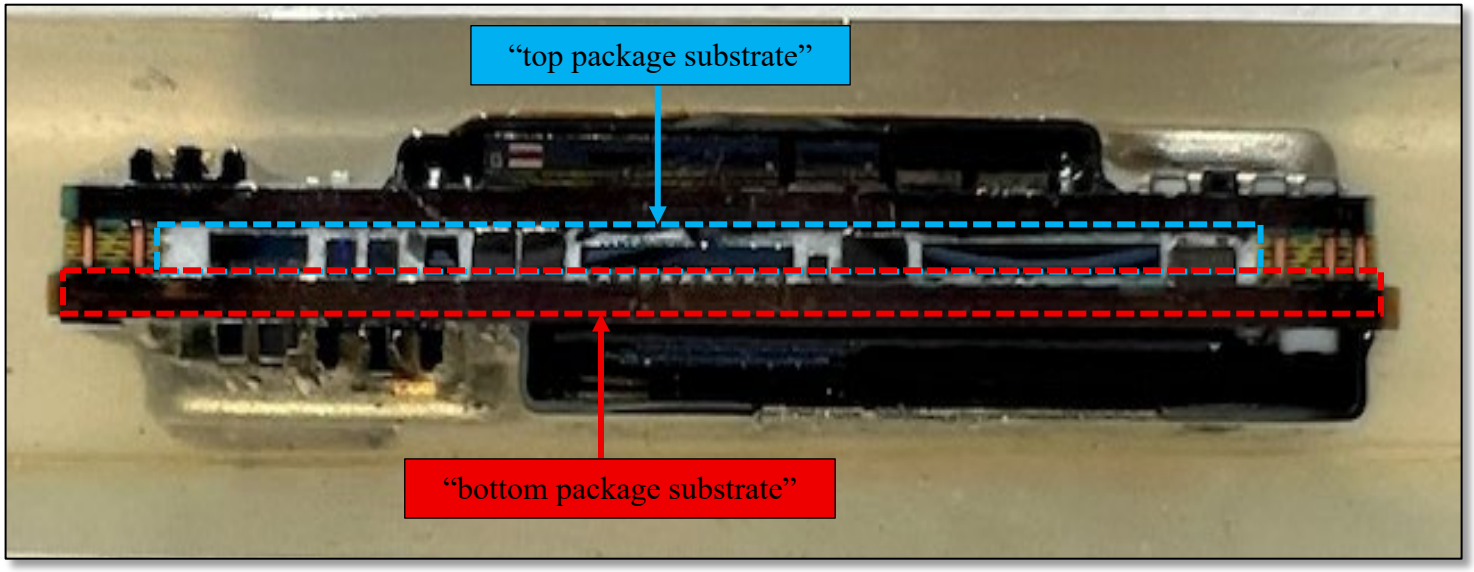
'202 Claim 1	Elements in Accused Smartphones
	For example, the Samsung Galaxy Z Flip5 comprises a structure:  (showing a top-side view of a motherboard in a Samsung Galaxy Z Flip5)  (showing a bottom-side view of a motherboard in a Samsung Galaxy Z Flip5)

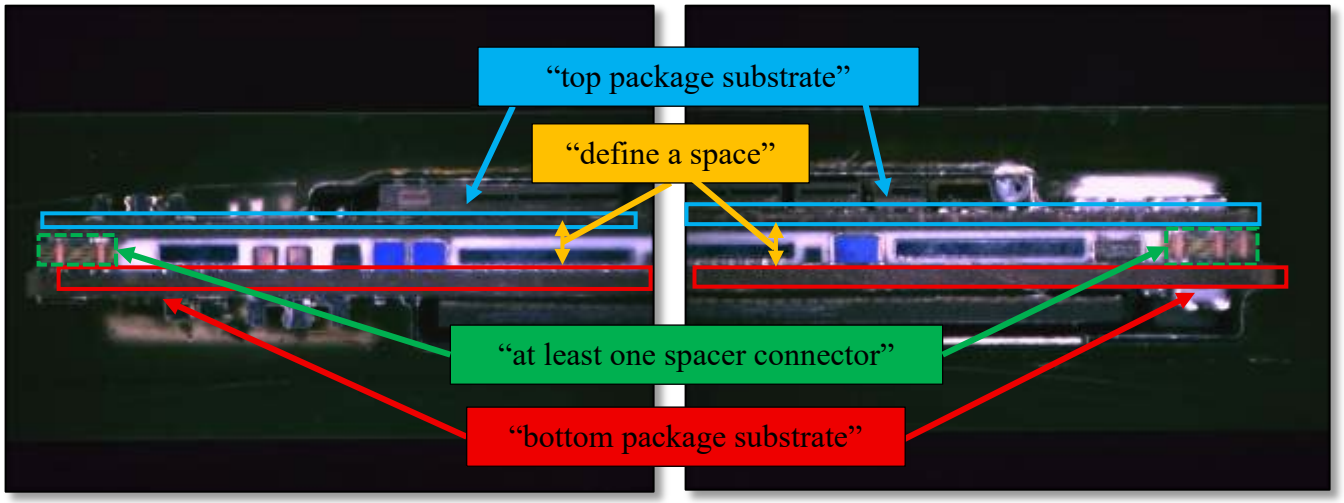
'202 Claim 1	Elements in Accused Smartphones
	 (showing an x-ray image of a motherboard in a Samsung Galaxy Z Flip5)  (showing a top-side view of a motherboard with a red cross-section area in a Samsung Galaxy Z Flip5)

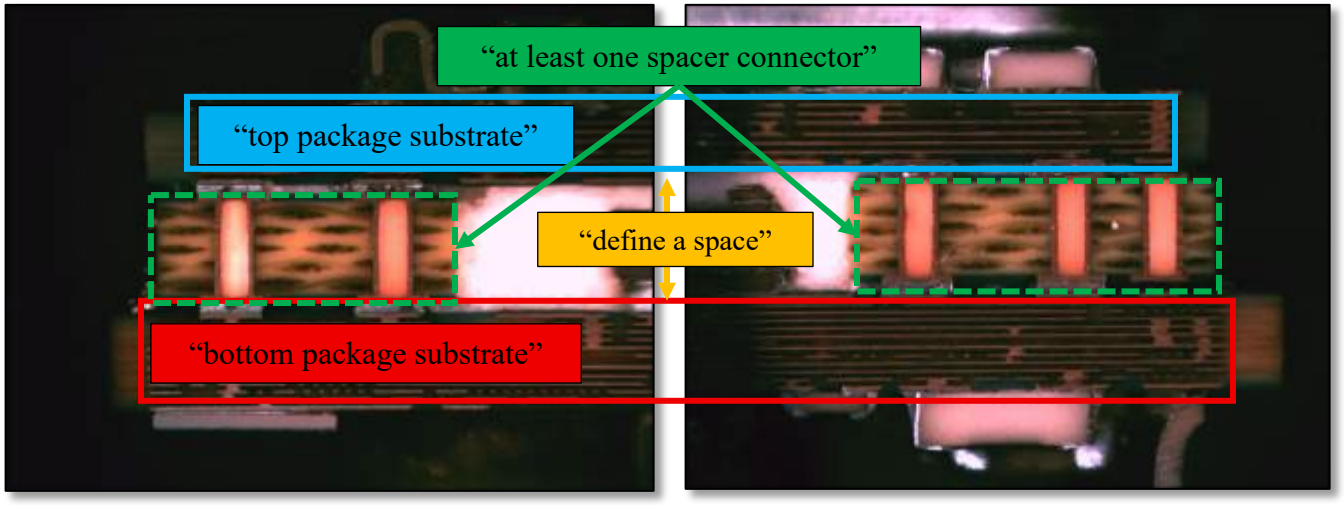
'202 Claim 1	Elements in Accused Smartphones
	 (showing a magnified x-ray image of a motherboard in a Samsung Galaxy Z Flip5)  (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy Z Flip5)

'202 Claim 1	Elements in Accused Smartphones
	 (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy Z Flip5)  (optical view showing a cross-section view of a motherboard in a Samsung Galaxy Z Flip5)

'202 Claim 1	Elements in Accused Smartphones
[1a] a bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate. For example, the Samsung Galaxy Z Flip5 comprises a bottom package substrate:  (optical view showing a bottom package substrate)

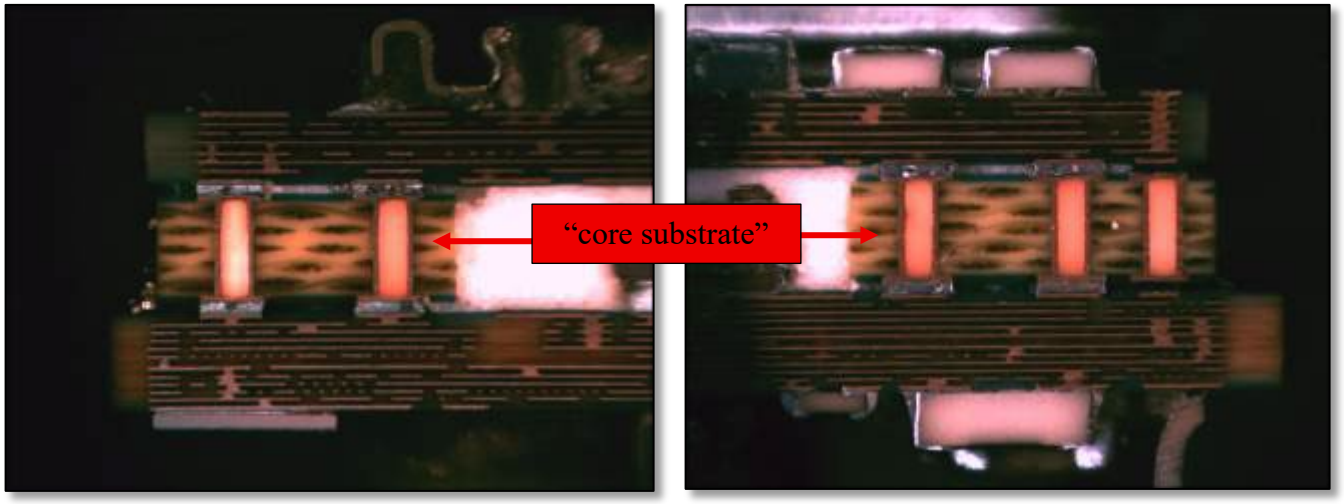
'202 Claim 1	Elements in Accused Smartphones
[1b] a top package substrate stacked on top of the bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top package substrate stacked on top of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate, stacked on top of the bottom package substrate. For example, the Samsung Galaxy Z Flip5 comprises a top package substrate stacked on top of the bottom package substrate:  (optical view showing a top package substrate stacked on top of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1c] at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector, such as a metallic structure or any other suitable spacer connector. The at least one spacer connector is interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. Therefore, the at least one spacer connector separates the top package substrate from the bottom package substrate. For example, the Samsung Galaxy Z Flip5 comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate:  (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

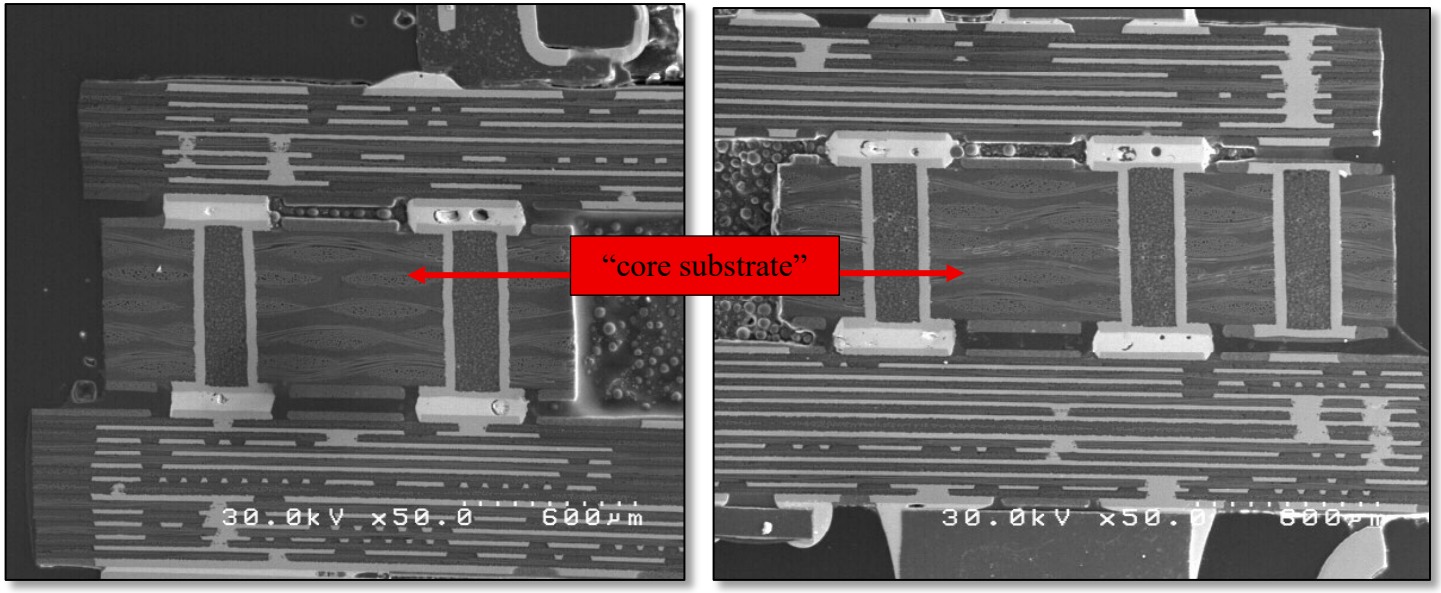
'202 Claim 1	Elements in Accused Smartphones
	 (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

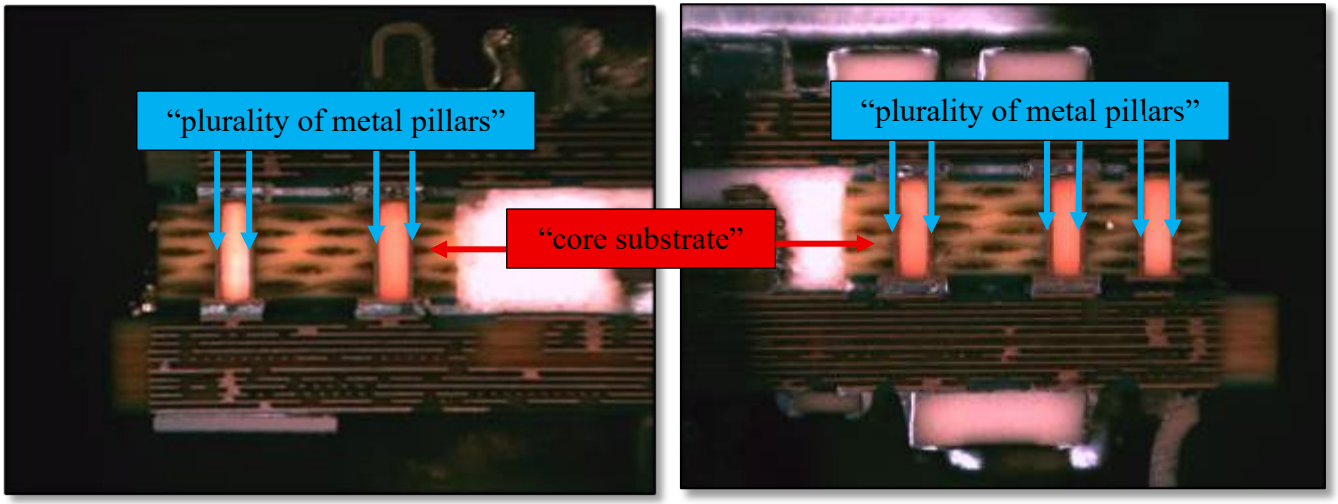
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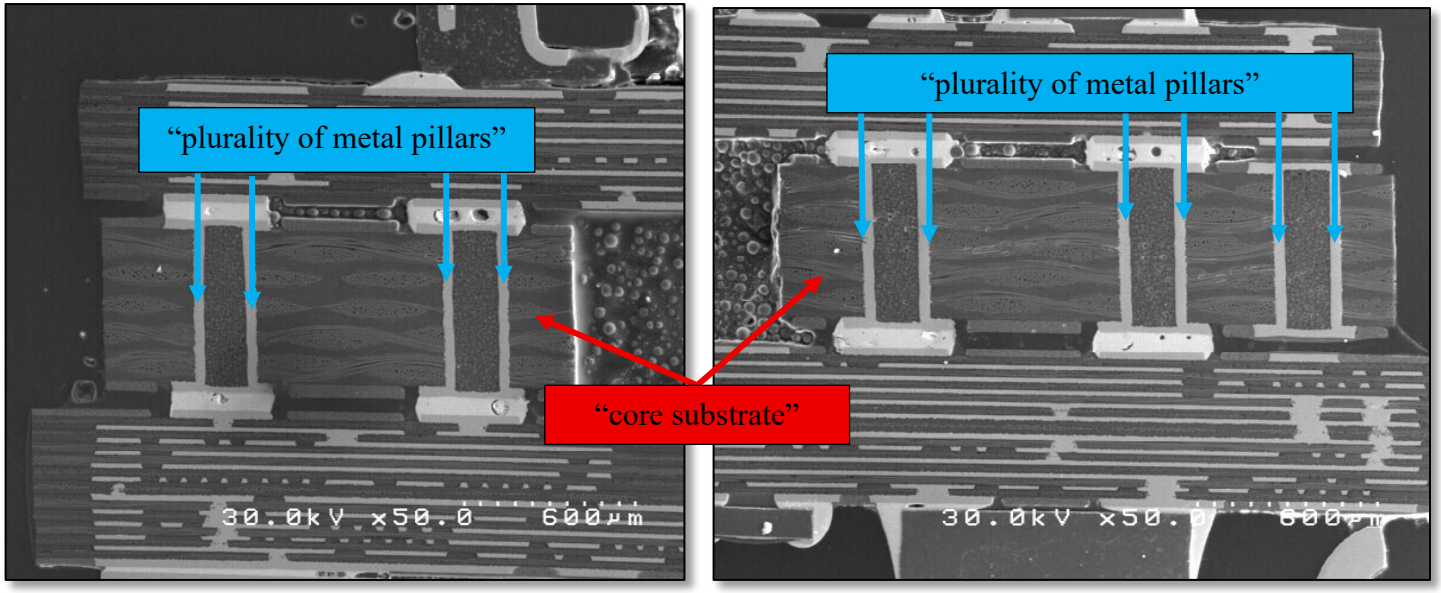
'202 Claim 1	Elements in Accused Smartphones
[1d-pre] wherein the spacer connector comprises:	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. See below.

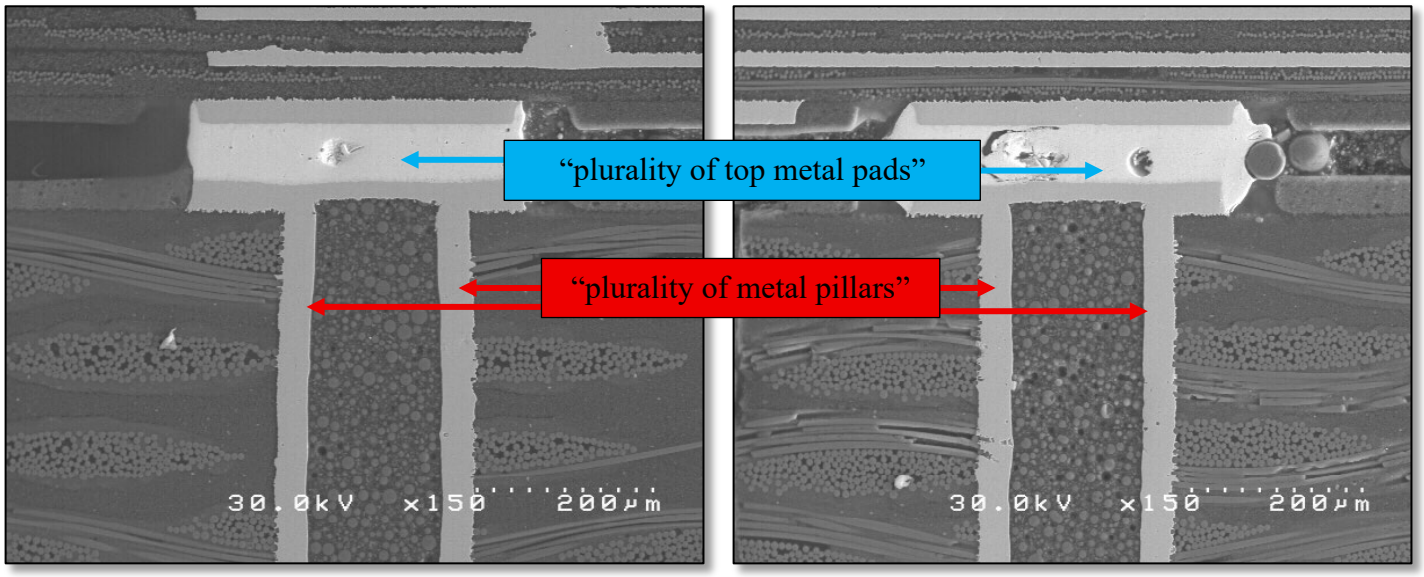
'202 Claim 1	Elements in Accused Smartphones
[1d-1] a core substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a core substrate, such as a silicon substrate or any other suitable core substrate. For example, the at least one spacer connector of the Samsung Galaxy Z Flip5 comprises a core substrate:  (optical view showing the core substrate)

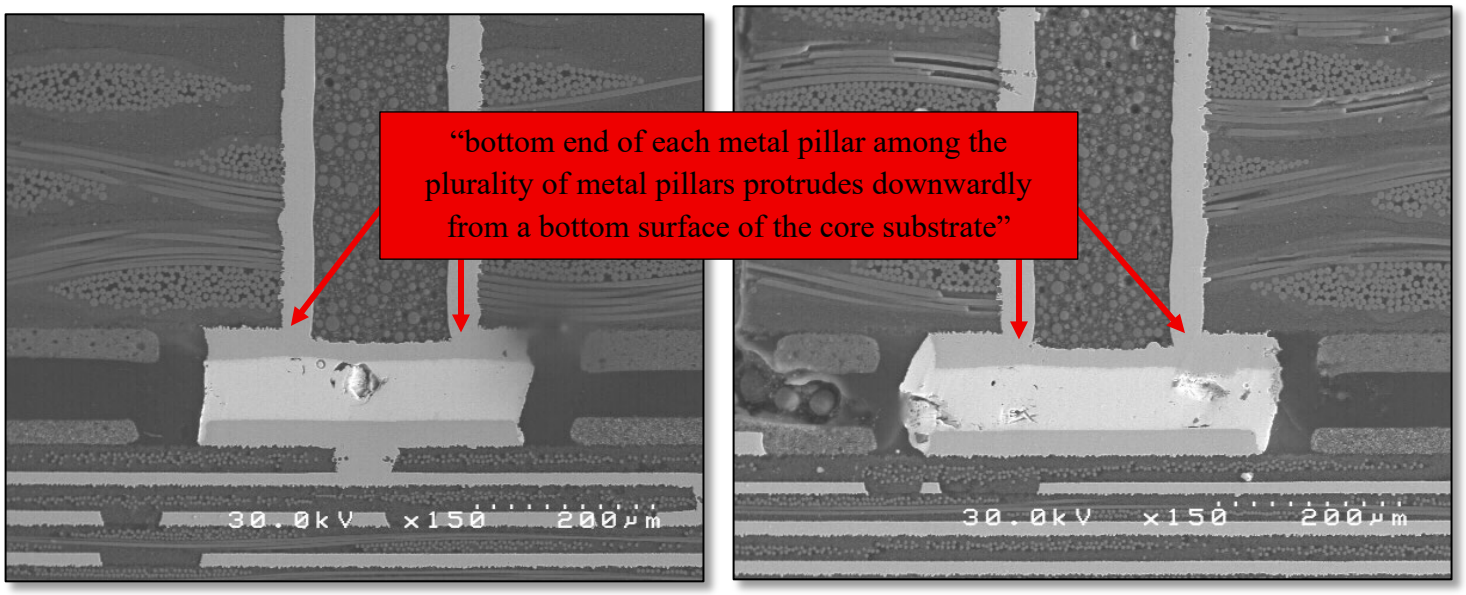
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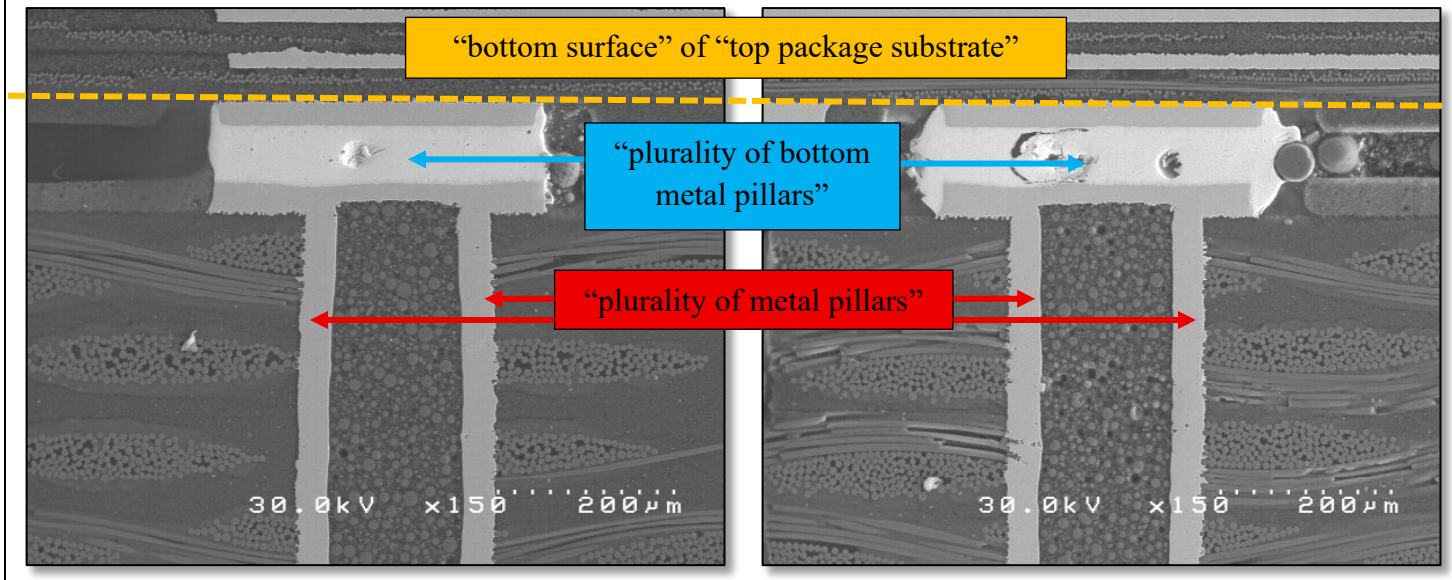
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the core substrate)

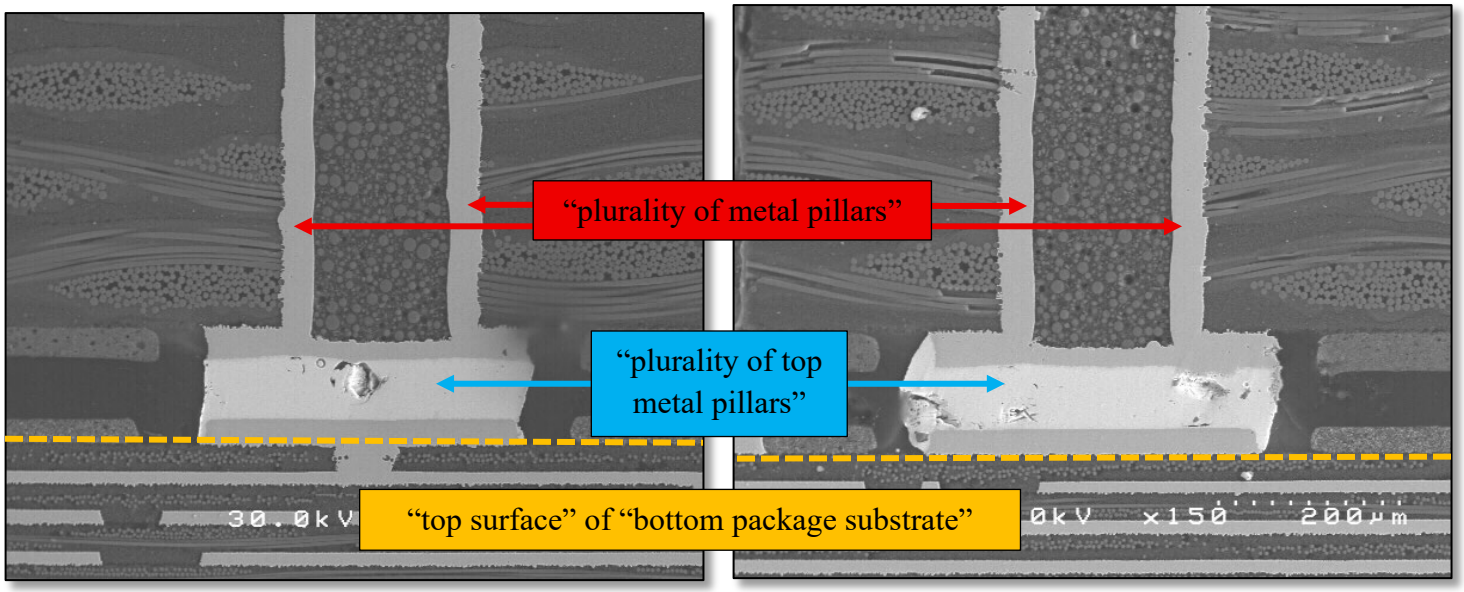
'202 Claim 1	Elements in Accused Smartphones
[1d-2] a plurality of metal pillars, each passing through the core substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of metal pillars, each passing through the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of metal pillars, such as copper pillars or any other suitable metal pillars. Each of the plurality of metal pillars passes through (*e.g.*, intersects) the core substrate. For example, the at least one spacer connector of the Samsung Galaxy Z Flip5 comprises a plurality of metal pillars, each passing through the core substrate:  (optical view showing the plurality of metal pillars, each passing through the core substrate)

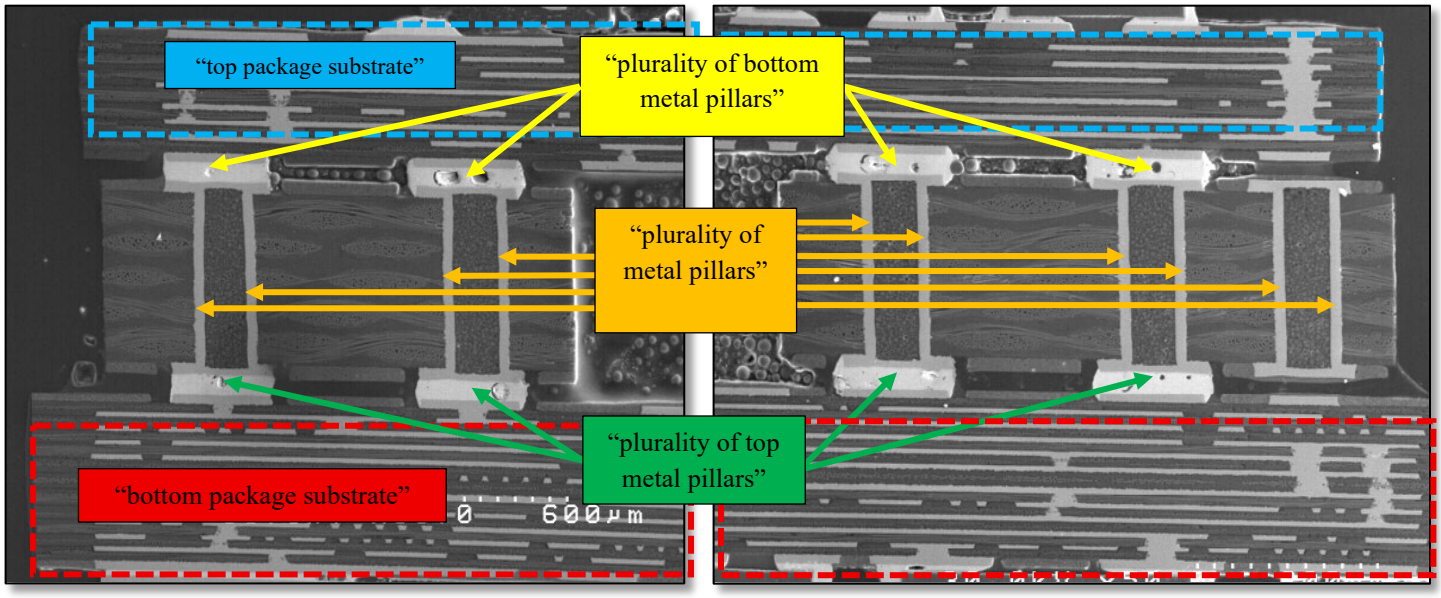
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the plurality of metal pillars, each passing through the core substrate)

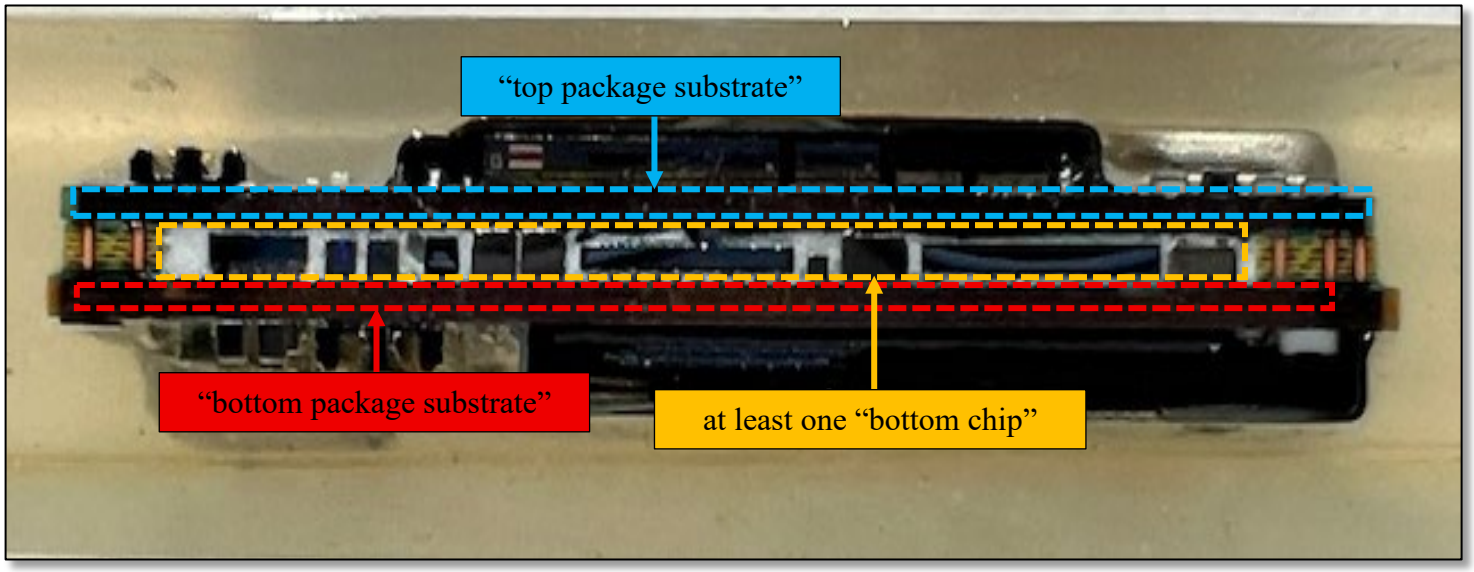
'202 Claim 1	Elements in Accused Smartphones
[1d-3] a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of top metal pads, such as copper metal pads or any other suitable metal pads. Each of the plurality of metal pads are connected to a top end of a corresponding metal pillar among the plurality of metal pillars. For example, the at least one spacer connector of the Samsung Galaxy Z Flip5 comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars:  (scanning electron microscope ("SEM") view showing the plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars)

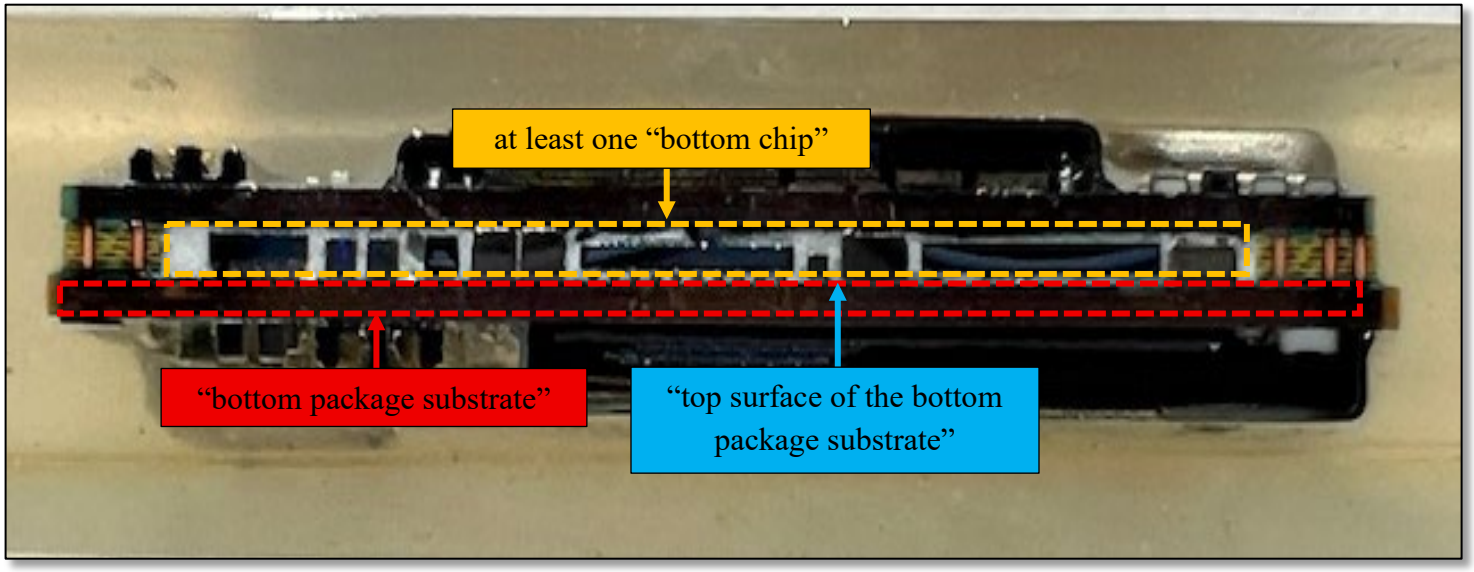
'202 Claim 1	Elements in Accused Smartphones
[1d-4] wherein a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. In the at least one spacer connector of Samsung's Accused Smartphones, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. In the at least one spacer connector, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from (*e.g.*, extends past) a bottom surface of the core substrate. For example, in the at least one spacer connector of the Samsung Galaxy Z Flip5, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate: surface of the core substrate:  (scanning electron microscope ("SEM") view showing the bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate)

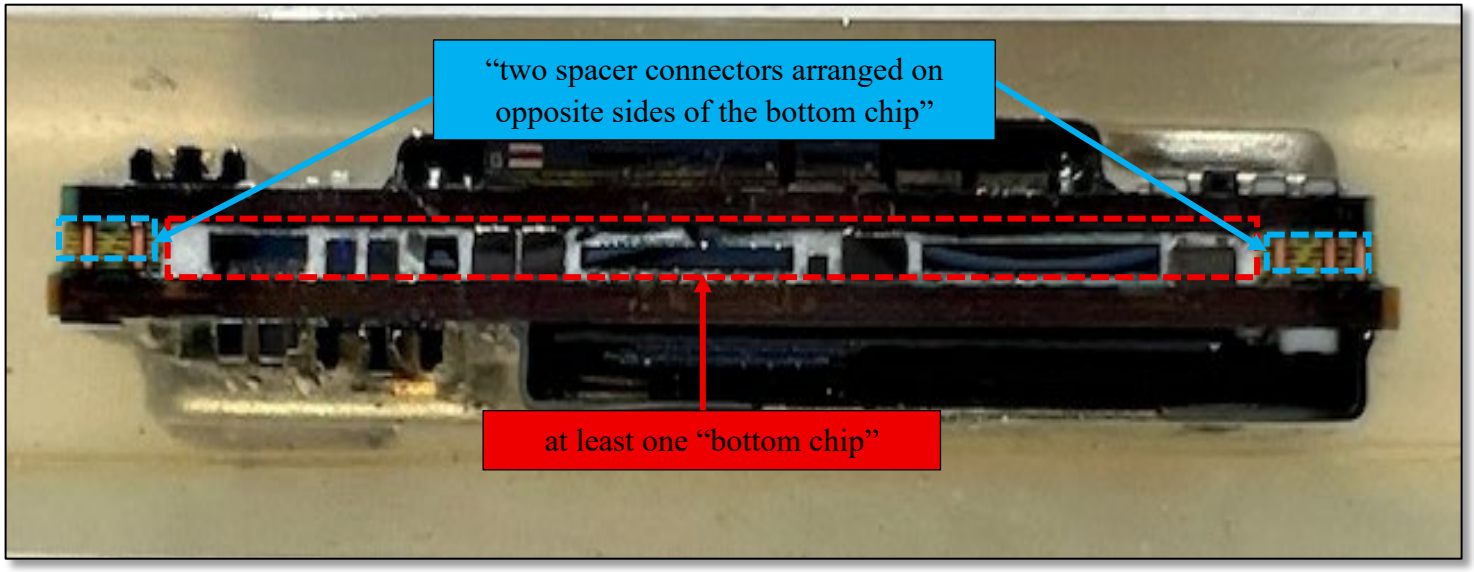
'202 Claim 1	Elements in Accused Smartphones
[1e] the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate has a bottom surface. Additionally, a plurality of bottom metal pillars, such as tin metal pillars or any other suitable bottom metal pillars, are connected to the bottom surface of the top package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the top package substrate of the Samsung Galaxy Z Flip5 has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

'202 Claim 1	Elements in Accused Smartphones
[1f] the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom package substrate of Samsung's Accused Smartphones has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom package substrate has a top surface. Additionally, a plurality of top metal pillars, such as tin metal pillars or any other suitable top metal pillars, are connected to the top surface of the bottom package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the bottom package substrate of the Samsung Galaxy Z Flip5 has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

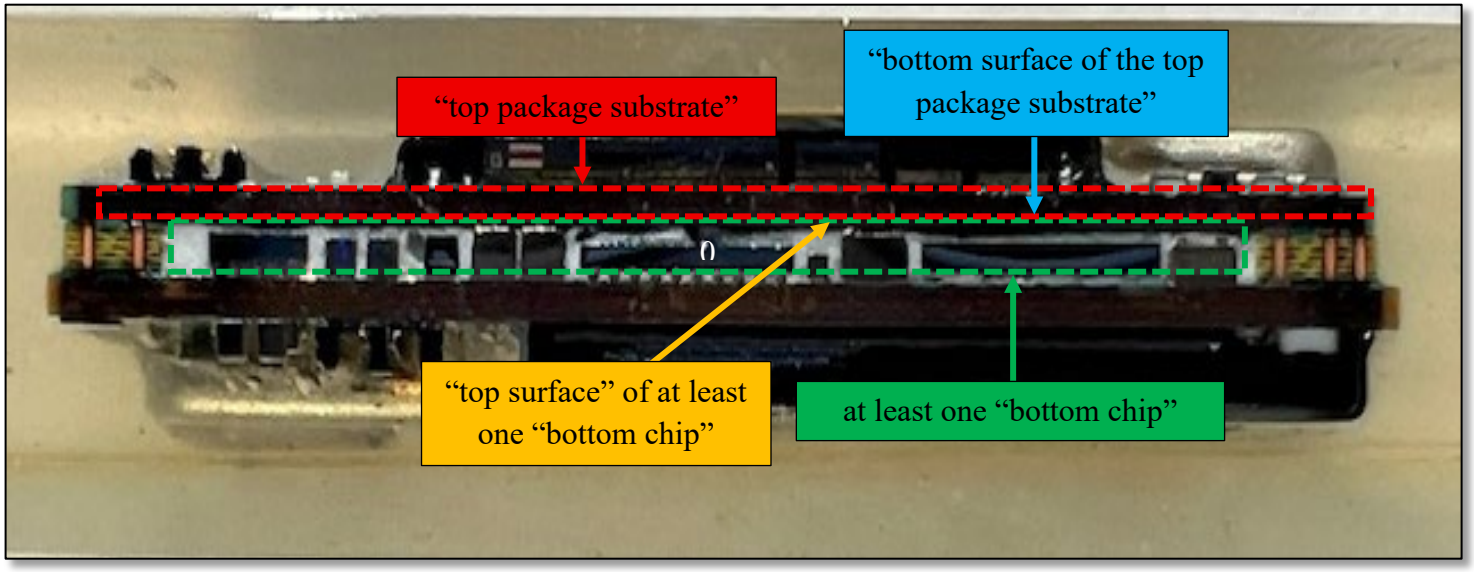
'202 Claim 1	Elements in Accused Smartphones
[1g] the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate is electrically coupled to the bottom package substrate. Additionally, current flows between the top package substrate and the bottom package substrate via the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate, all of which are electrically coupled together. For example, the top package substrate of the Samsung Galaxy Z Flip5 is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate:  (scanning electron microscope ("SEM") view showing the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1h] a bottom chip arranged in the space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, arranged between the space between the bottom package substrate and the top package substrate formed by the at least one spacer connector. For example, the Samsung Galaxy Z Flip5 comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate:  (optical view showing the bottom chip arranged in the space between the bottom package substrate and the top package substrate)

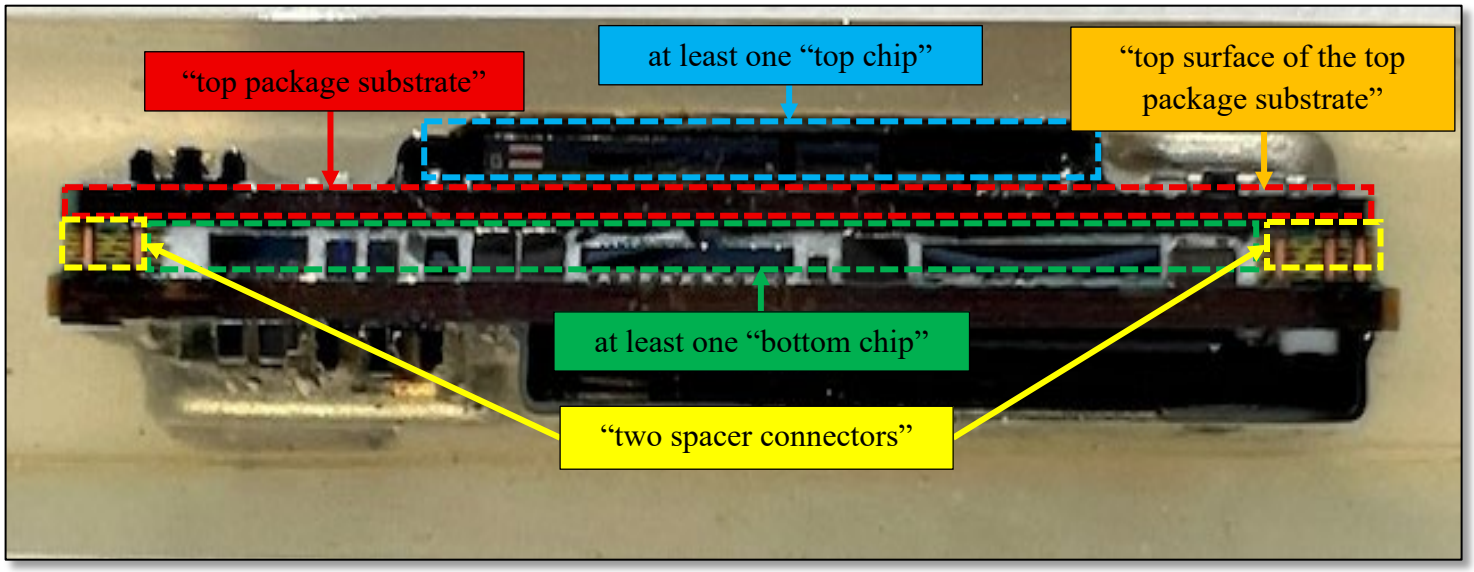
'202 Claim 1	Elements in Accused Smartphones
[1i] the bottom chip is mounted to the top surface of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged mounted to the top surface of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, mounted to the top surface of the bottom package substrate. For example, the bottom chip of the Samsung Galaxy Z Flip5 is mounted to the top surface of the bottom package substrate:  (optical view showing the bottom chip mounted to the top surface of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1j] the at least one spacer connector comprises two spacer connectors arranged on opposite sides of the bottom chip.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises two spacer connectors arranged on opposite sides of the bottom chip. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the at least one spacer connector includes two spacer connectors arranged on opposite sides of the bottom chip. For example, the at least one spacer connector of the Samsung Galaxy Z Flip5 comprises two spacer connectors arranged on opposite sides of the bottom chip:  (optical view showing the at least one spacer connector comprising two spacer connectors arranged on opposite sides of the bottom chip)

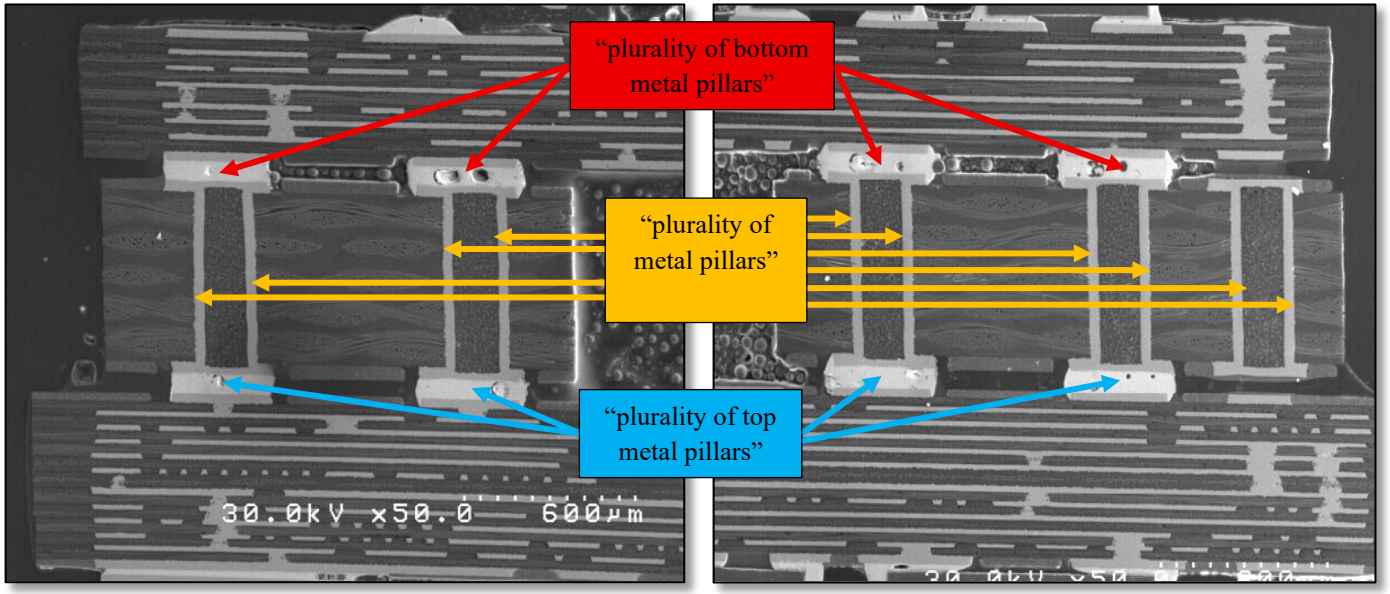
"2. The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate."

'202 Claim 2	Elements in Accused Smartphones
[2] The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom chip of Samsung's Accused Smartphones has a top surface that is spaced downwardly from the bottom surface of the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom chip has a top surface that is spaced downwardly from the bottom surface of the top package substrate. For example, in the Samsung Galaxy Z Flip5, a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate:  (optical view showing the top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate)

"3. The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors."

'202 Claim 3	Elements in Accused Smartphones
[3] The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors.	TopWire incorporates the disclosures set forth for Claims 1 and 2 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top chip, such as a memory chip or any other suitable top chip, mounted to the top surface of the top package substrate. The top package substrate is stacked on top of the bottom package substrate such that the top chip overlaps the bottom chip and each of the two spacer connectors. For example, the Samsung Galaxy Z Flip5 comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors:  (optical view showing the top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors)

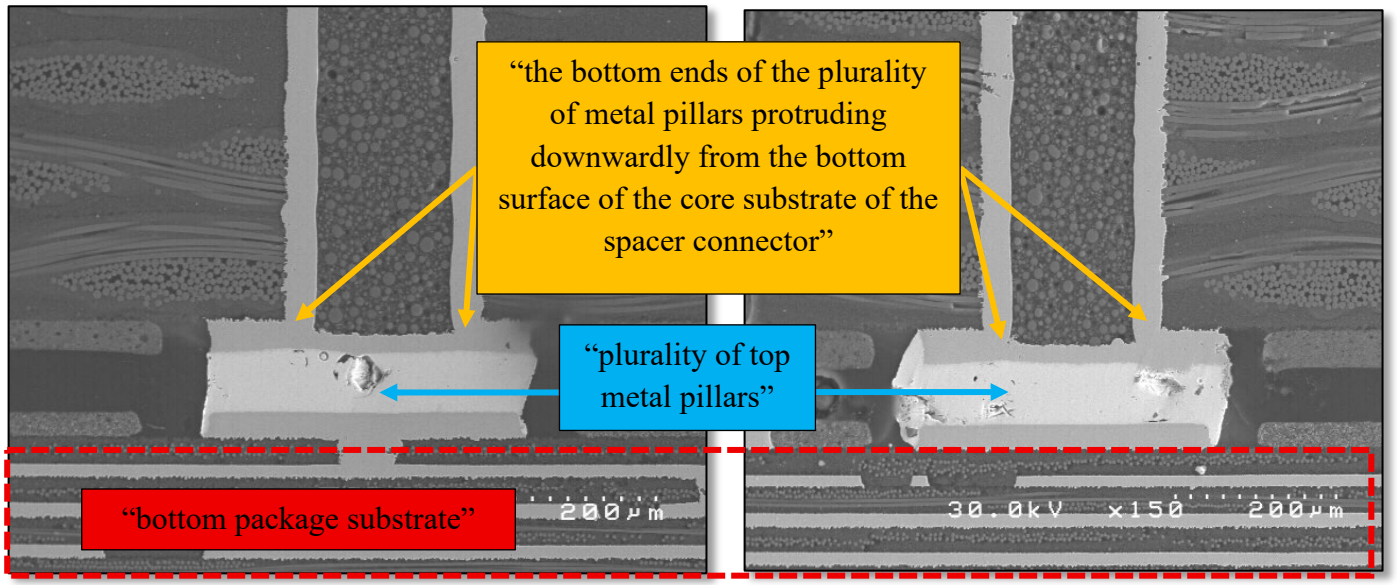
"4. The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate."

'202 Claim 4	Elements in Accused Smartphones
[4] The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. Each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned (*e.g.*, vertically aligned) with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. For example, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy Z Flip5 is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate: 

"4. The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate."

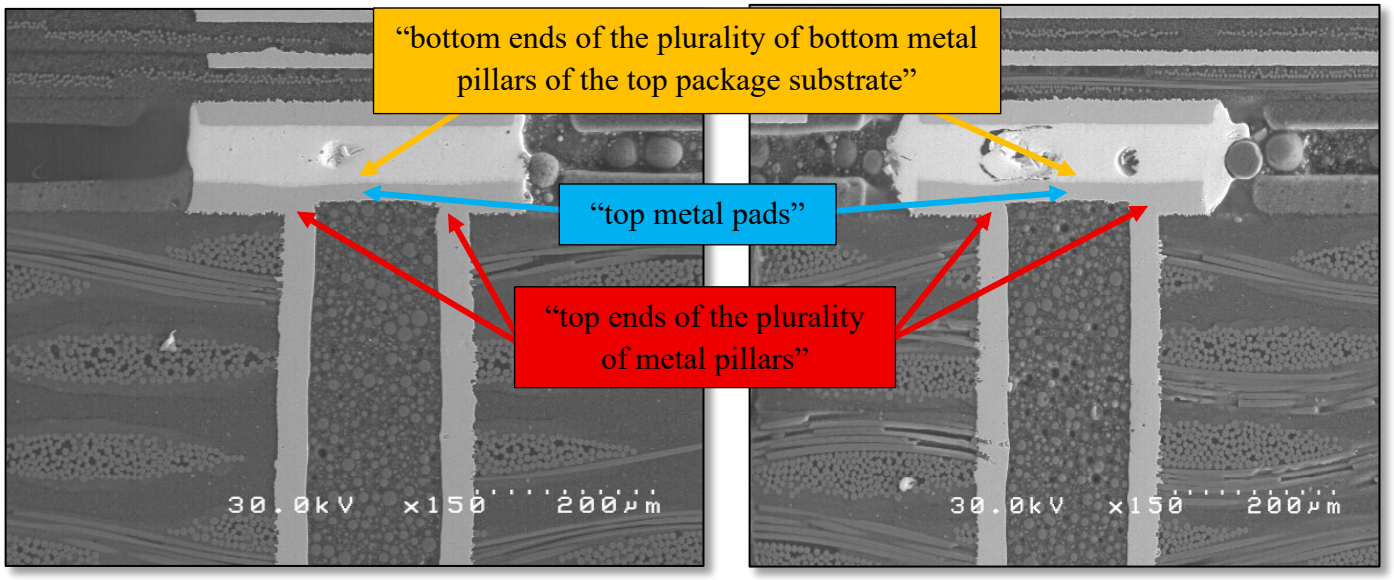
'202 Claim 4	Elements in Accused Smartphones
	(scanning electron microscope ("SEM") view showing each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate)

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
[6a] The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in Samsung's Accused Smartphones are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector. The plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. For example, the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in the Samsung Galaxy Z Flip5 are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate: 

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
	(scanning electron microscope ("SEM") view showing the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate)

'202 Claim 6	Elements in Accused Smartphones
[**6b**] bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector.	TopWire incorporates the disclosures set forth for Claims 1, 4, and 6 as if set forth herein. The bottom ends of the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the bottom ends of the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy Z Flip5 are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:  (scanning electron microscope ("SEM") view showing bottom ends of the plurality of bottom metal pillars of the top package substrate that are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

'202 Claim 9	Elements in Accused Smartphones
[9] The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The spacer connector in Samsung's Accused Smartphones further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a spacer connector. The spacer connector further includes a plurality of bottom metal pads, such as copper metal pads or any other suitable bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars. The bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the spacer connector in the Samsung Galaxy Z Flip5 further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

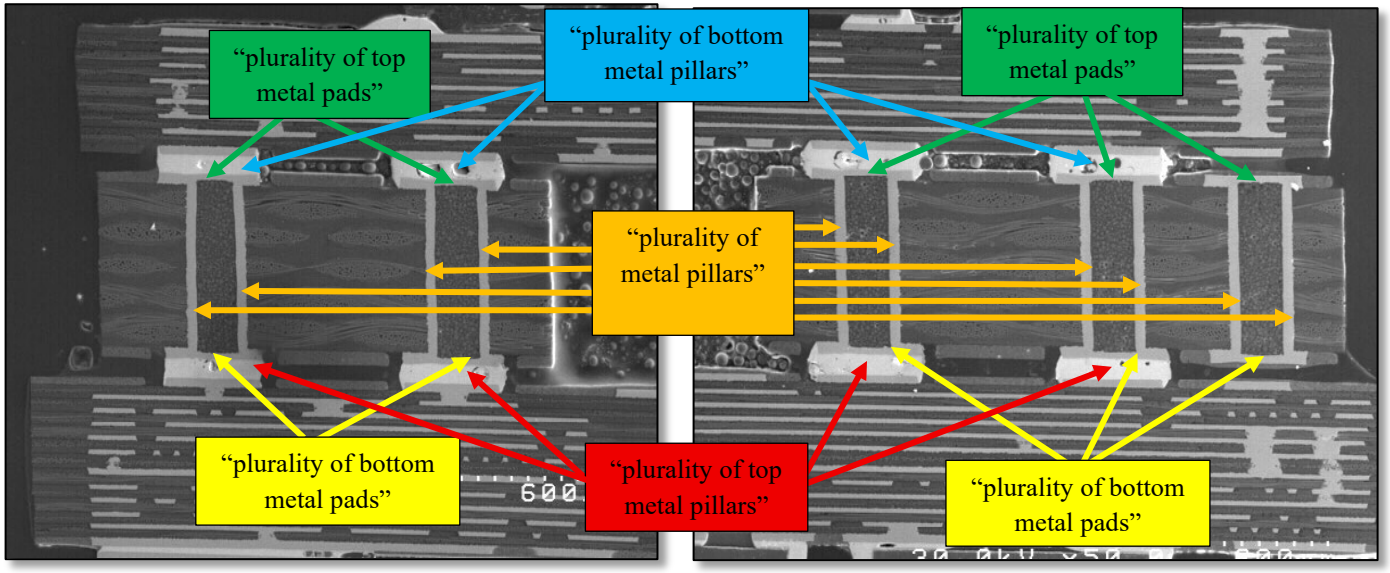
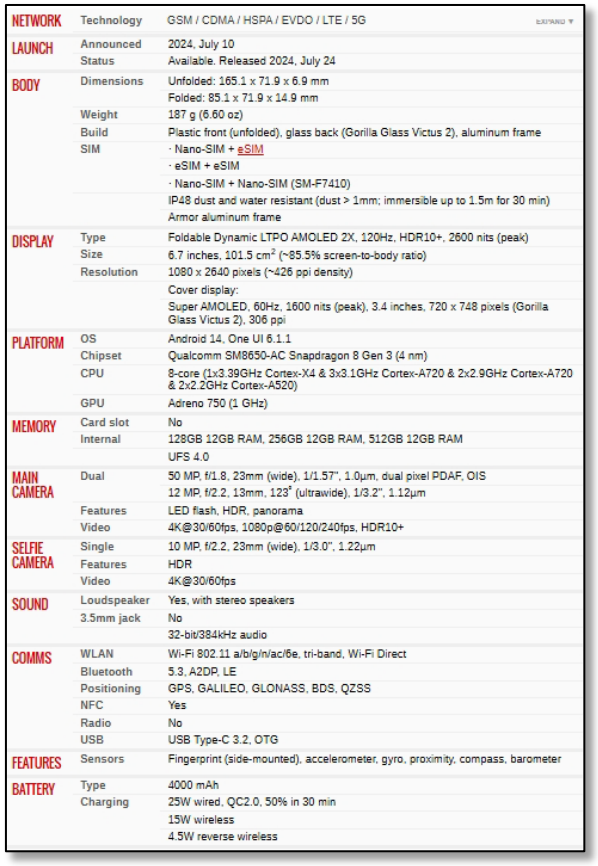
'202 Claim 9	Elements in Accused Smartphones
the corresponding top metal pads of the spacer connector.	 (scanning electron microscope ("SEM") view showing the spacer connector further comprising a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars being connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate being connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

EXHIBIT I

Exhibit I – U.S. Patent No. 9,859,202 (Accused Smartphones)
"1. A structure, comprising:"

'202 Claim 1	Elements in Accused Smartphones
[1-pre] A structure, comprising:	To the extent the preamble is limiting, Samsung's Accused Smartphones[1] comprise a structure. *E.g.*, Samsung's Accused Smartphones incorporate structures, such as motherboards (sometimes also referred to as "logic boards"). The motherboards in Samsung's Accused Smartphones contain integrated circuits (sometimes also referred to as "chips"). The motherboard performs many core functions of Samsung's Accused Smartphones.  (showing the specification of a Samsung Galaxy Z Flip6). *See* GSMARENA, *Specifications*, available at https://www.gsmarena.com/samsung_galaxy_Z_flip6-13192.php (last visited February 8, 2026).

NETWORK	Technology	GSM / CDMA / HSPA / EVDO / LTE / 5G
LAUNCH	Announced	2024, July 10
	Status	Available. Released 2024, July 24
BODY	Dimensions	Unfolded: 165.1 x 71.9 x 6.9 mm Folded: 85.1 x 71.9 x 14.9 mm
	Weight	187 g (6.60 oz)
	Build	Plastic front (unfolded), glass back (Gorilla Glass Victus 2), aluminum frame
	SIM	· Nano-SIM + eSIM · eSIM + eSIM · Nano-SIM + Nano-SIM (SM-F7410)
		IP48 dust and water resistant (dust > 1mm; immersible up to 1.5m for 30 min)
		Armor aluminum frame
DISPLAY	Type	Foldable Dynamic LTPO AMOLED 2X, 120Hz, HDR10+, 2600 nits (peak)
	Size	6.7 inches, 101.5 cm² (~85.5% screen-to-body ratio)
	Resolution	1080 x 2640 pixels (~426 ppi density)
		Cover display: Super AMOLED, 60Hz, 1600 nits (peak), 3.4 inches, 720 x 748 pixels (Gorilla Glass Victus 2), 306 ppi
PLATFORM	OS	Android 14, One UI 6.1.1
	Chipset	Qualcomm SM8650-AC Snapdragon 8 Gen 3 (4 nm)
	CPU	8-core (1x3.39GHz Cortex-X4 & 3x3.1GHz Cortex-A720 & 2x2.9GHz Cortex-A720 & 2x2.2GHz Cortex-A520)
	GPU	Adreno 750 (1 GHz)
MEMORY	Card slot	No
	Internal	128GB 12GB RAM, 256GB 12GB RAM, 512GB 12GB RAM
		UFS 4.0
MAIN CAMERA	Dual	50 MP, f/1.8, 23mm (wide), 1/1.57", 1.0µm, dual pixel PDAF, OIS 12 MP, f/2.2, 13mm, 123° (ultrawide), 1/3.2", 1.12µm
	Features	LED flash, HDR, panorama
	Video	4K@30/60fps, 1080p@60/120/240fps, HDR10+
SELFIE CAMERA	Single	10 MP, f/2.2, 23mm (wide), 1/3.0", 1.22µm
	Features	HDR
	Video	4K@30/60fps
SOUND	Loudspeaker	Yes, with stereo speakers
	3.5mm jack	No
		32-bit/384kHz audio
COMMS	WLAN	Wi-Fi 802.11 a/b/g/n/ac/6e, tri-band, Wi-Fi Direct
	Bluetooth	5.3, A2DP, LE
	Positioning	GPS, GALILEO, GLONASS, BDS, QZSS
	NFC	Yes
	Radio	No
	USB	USB Type-C 3.2, OTG
FEATURES	Sensors	Fingerprint (side-mounted), accelerometer, gyro, proximity, compass, barometer
BATTERY	Type	4000 mAh
	Charging	25W wired, QC2.0, 50% in 30 min 15W wireless 4.5W reverse wireless

[1] The term Accused Smartphones is defined as those smartphone products accused of infringement in the cover pleading of these contentions, and those further identified during discovery.

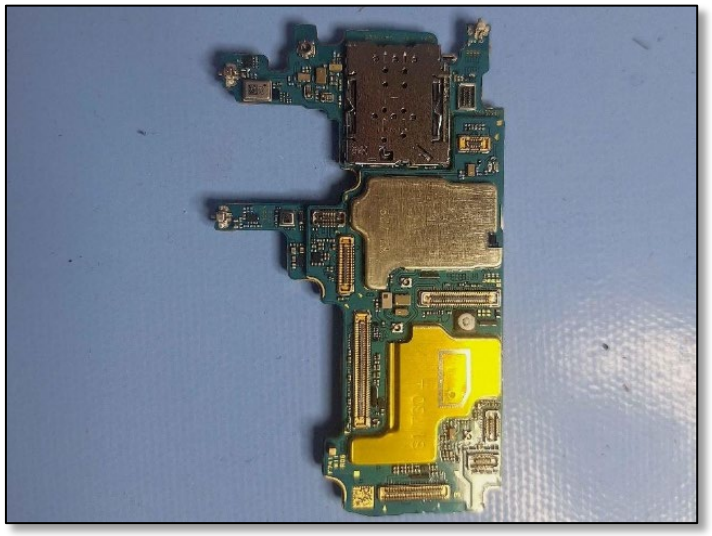
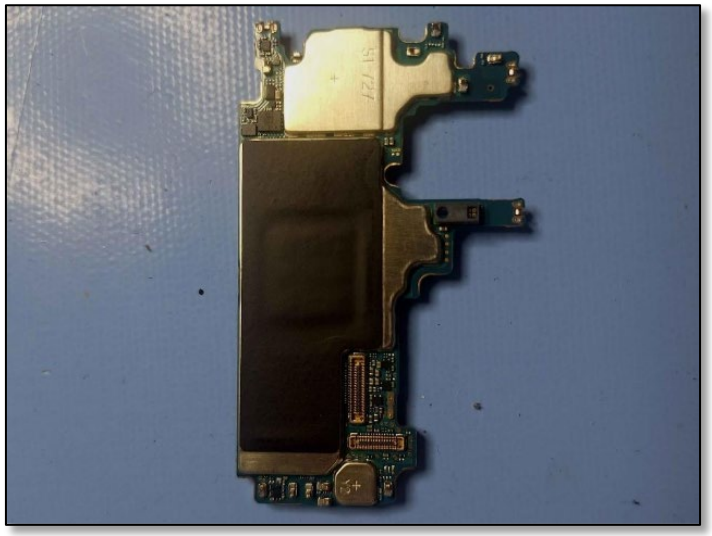
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'202 Claim 1	Elements in Accused Smartphones
	 (showing a top-side view of a Samsung Galaxy Z Flip6)  (showing a bottom-side view of a Samsung Galaxy Z Flip6)

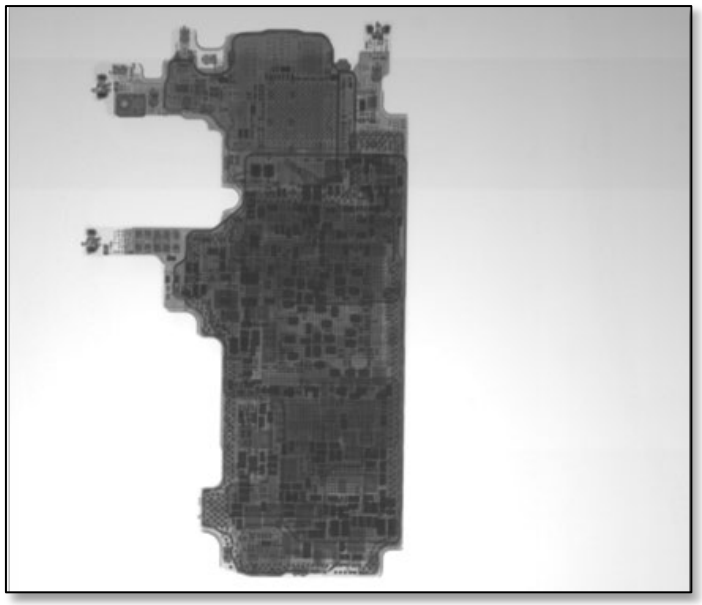
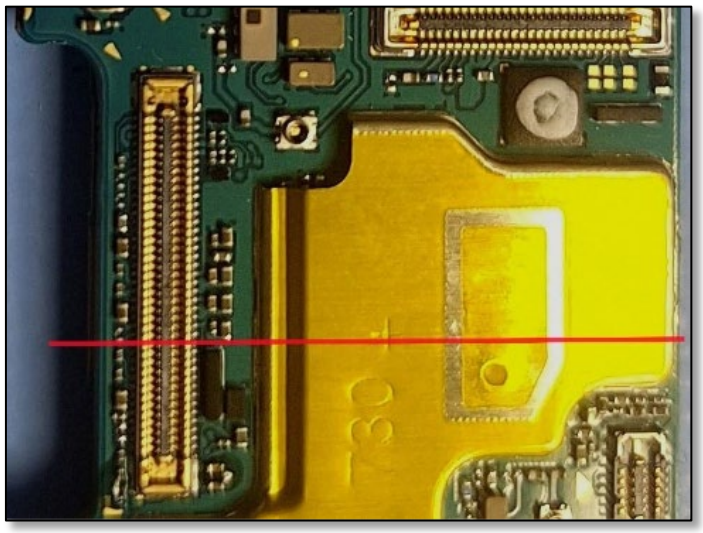
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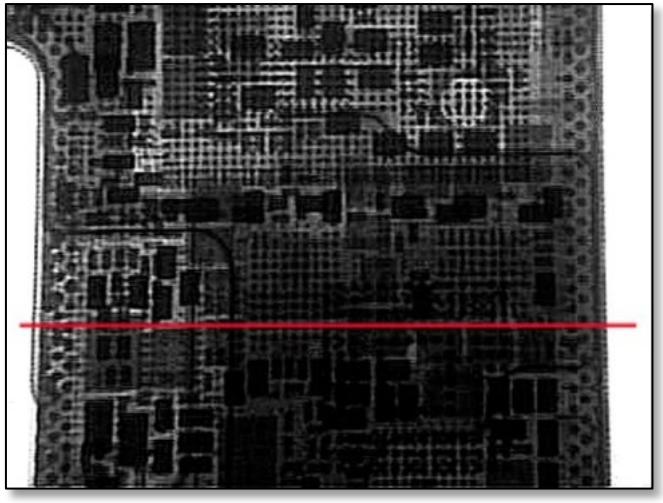
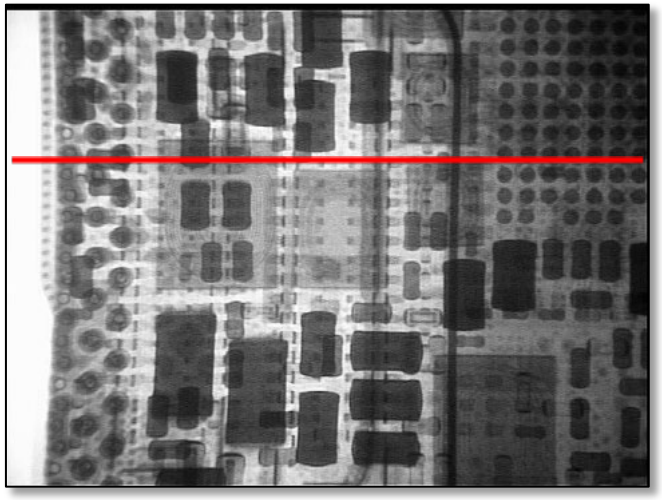
'202 Claim 1	Elements in Accused Smartphones
	 (showing a disassembled example Samsung Galaxy Z Flip6)  (showing a disassembled example Samsung Galaxy Z Flip6)

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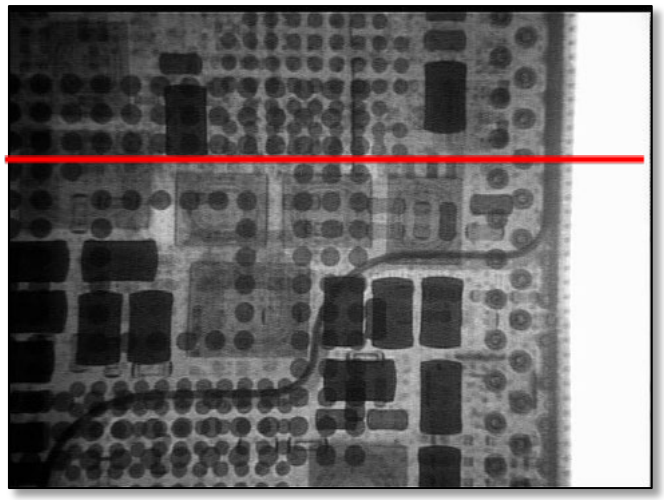
'202 Claim 1	Elements in Accused Smartphones
	For example, the Samsung Galaxy Z Flip6 comprises a structure:  (showing a top-side view of a motherboard in a Samsung Galaxy Z Flip6)  (showing a bottom-side view of a motherboard in a Samsung Galaxy Z Flip6)

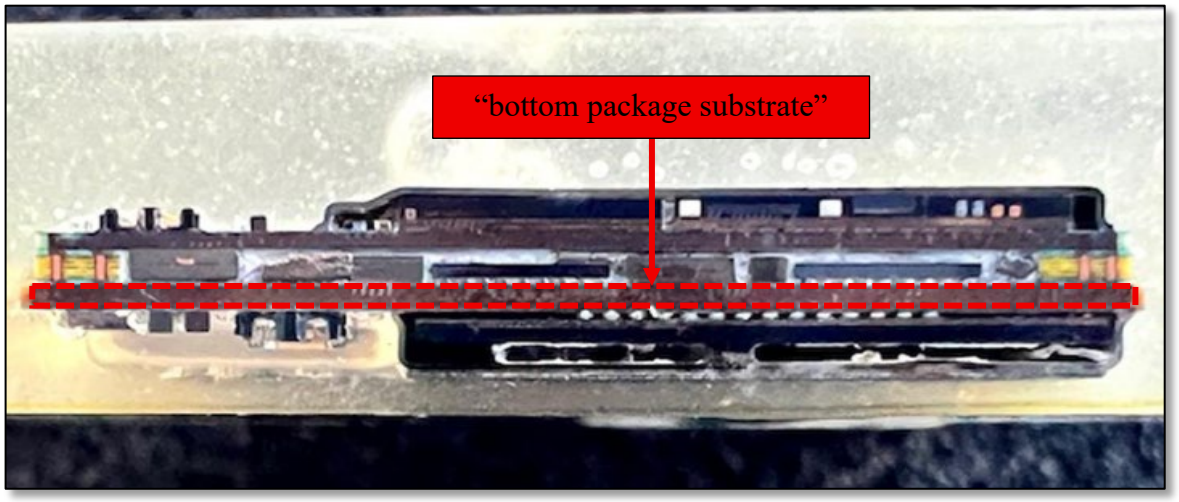
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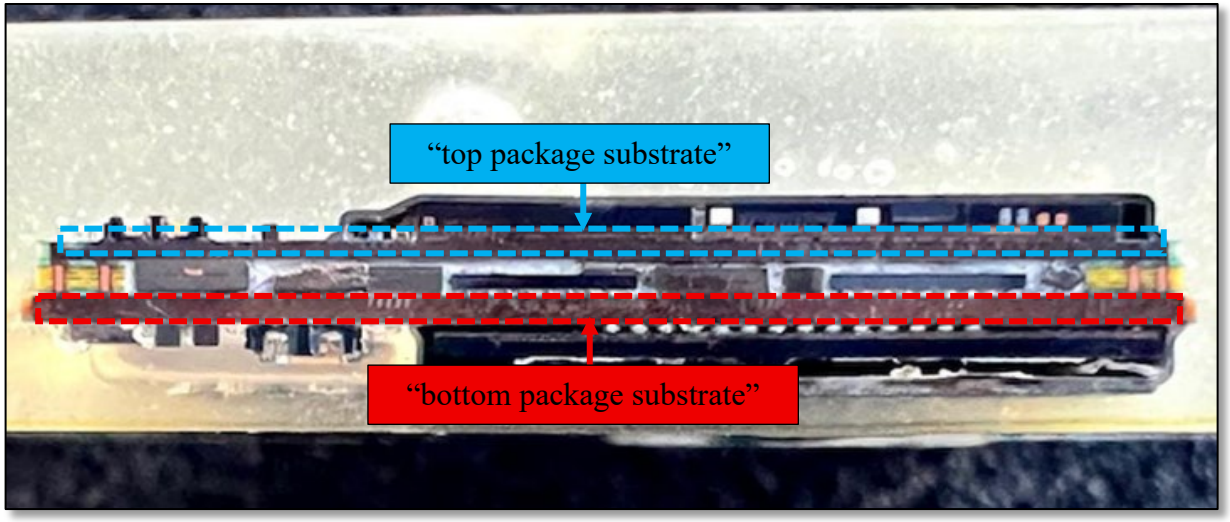
'202 Claim 1	Elements in Accused Smartphones
	 (showing an x-ray image of a motherboard in a Samsung Galaxy Z Flip6)  (showing a top-side view of a motherboard with a red cross-section area in a Samsung Galaxy Z Flip6)

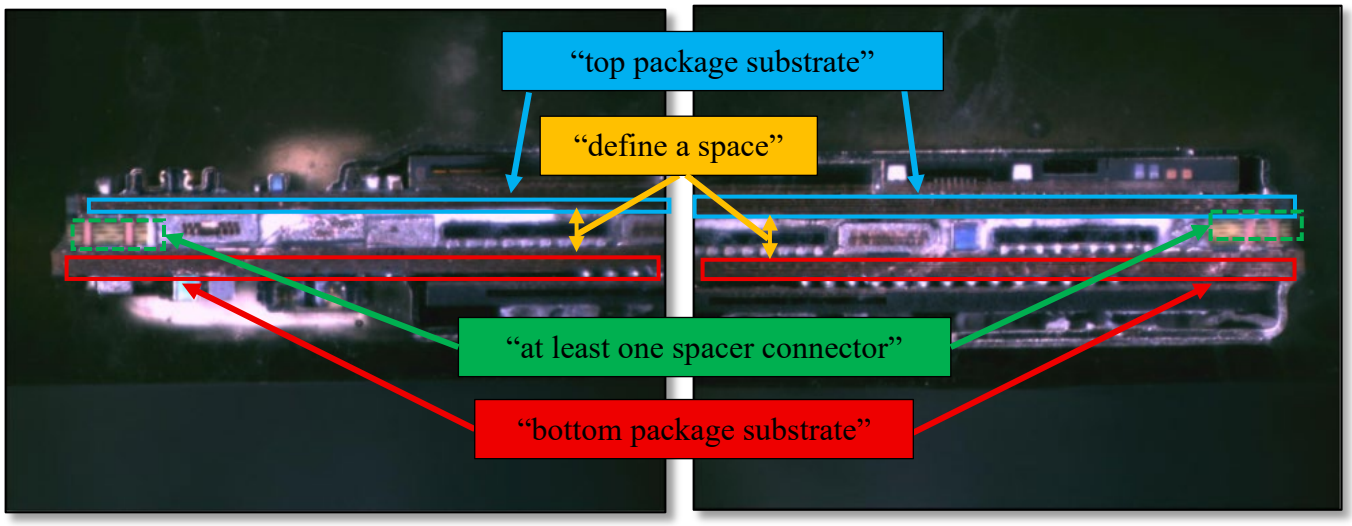
'202 Claim 1	Elements in Accused Smartphones
	 (showing a magnified x-ray image of a motherboard in a Samsung Galaxy Z Flip6)  (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy Z Flip6)

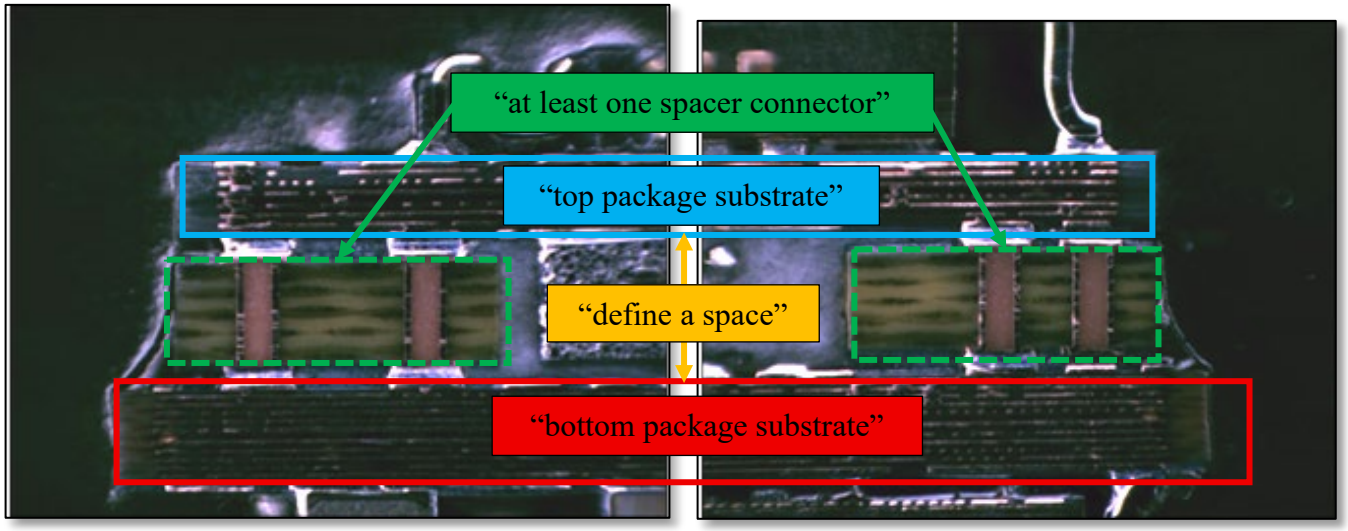
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'202 Claim 1	Elements in Accused Smartphones
	 (showing a magnified x-ray image of a motherboard with a red cross-section area in a Samsung Galaxy Z Flip6)  (optical view showing a cross-section view of a motherboard in a Samsung Galaxy Z Flip6)

'202 Claim 1	Elements in Accused Smartphones
[1a] a bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate. For example, the Samsung Galaxy Z Flip6 comprises a bottom package substrate:  (optical view showing a bottom package substrate)

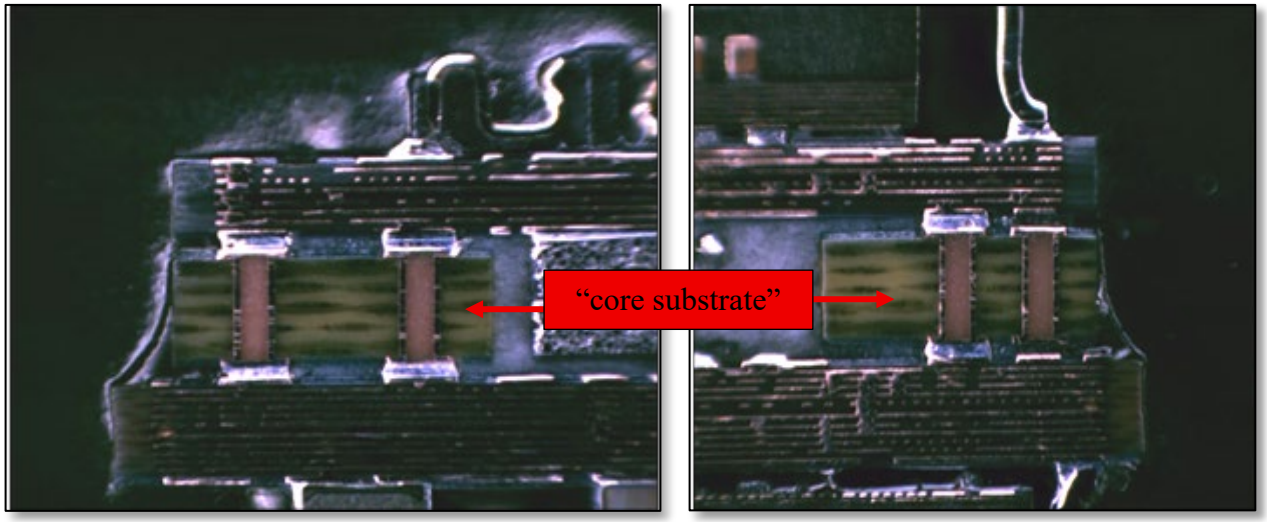
'202 Claim 1	Elements in Accused Smartphones
[1b] a top package substrate stacked on top of the bottom package substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top package substrate stacked on top of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top package substrate, such as a substrate-like printed circuit board or any other suitable bottom package substrate, stacked on top of the bottom package substrate. For example, the Samsung Galaxy Z Flip6 comprises a top package substrate stacked on top of the bottom package substrate:  (optical view showing a top package substrate stacked on top of the bottom package substrate)

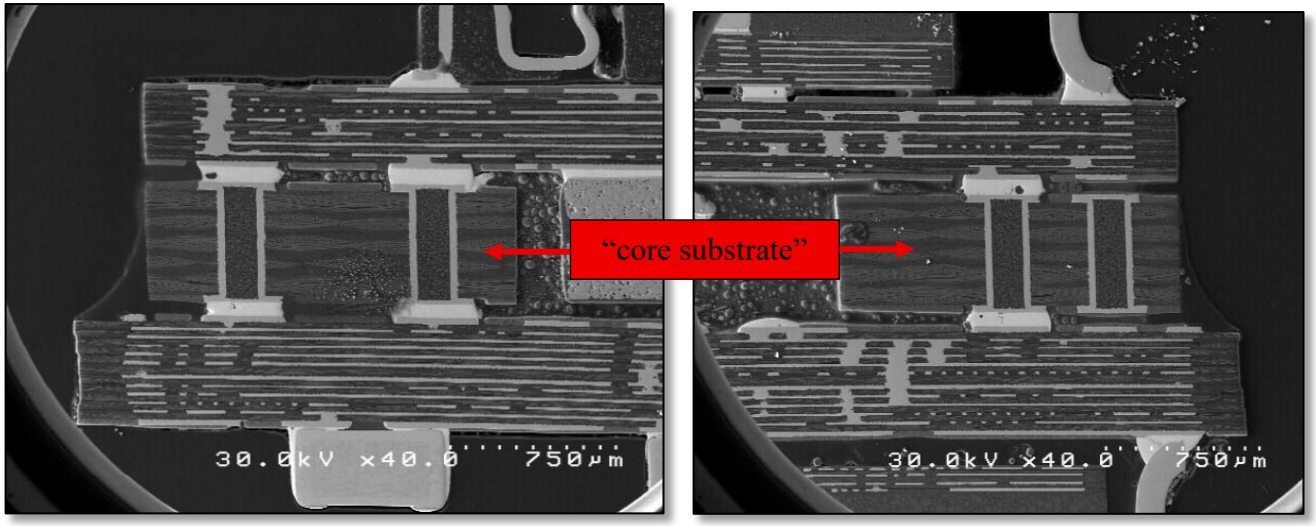
'202 Claim 1	Elements in Accused Smartphones
[1c] at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector, such as a metallic structure or any other suitable spacer connector. The at least one spacer connector is interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate. Therefore, the at least one spacer connector separates the top package substrate from the bottom package substrate. For example, the Samsung Galaxy Z Flip6 comprises at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate:  (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

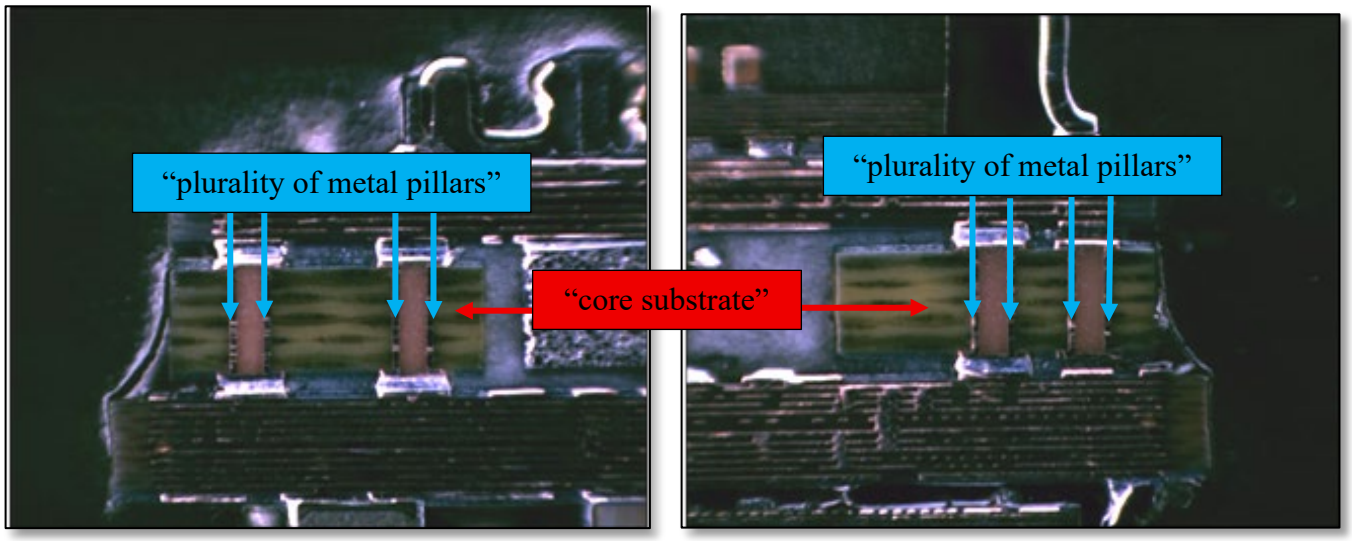
'202 Claim 1	Elements in Accused Smartphones
	 (optical view showing at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate)

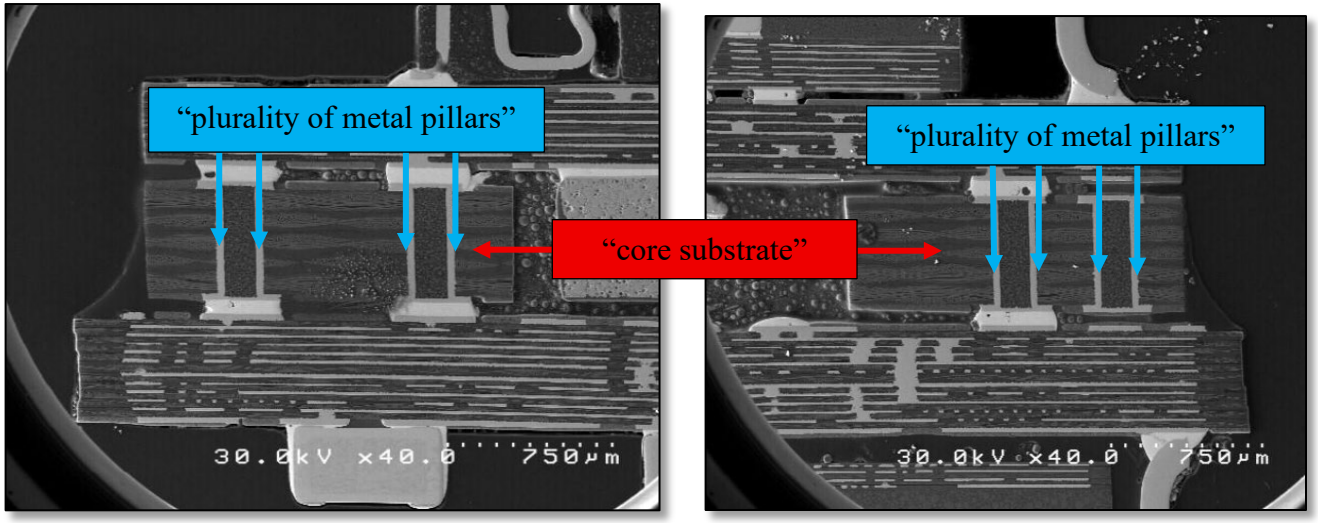
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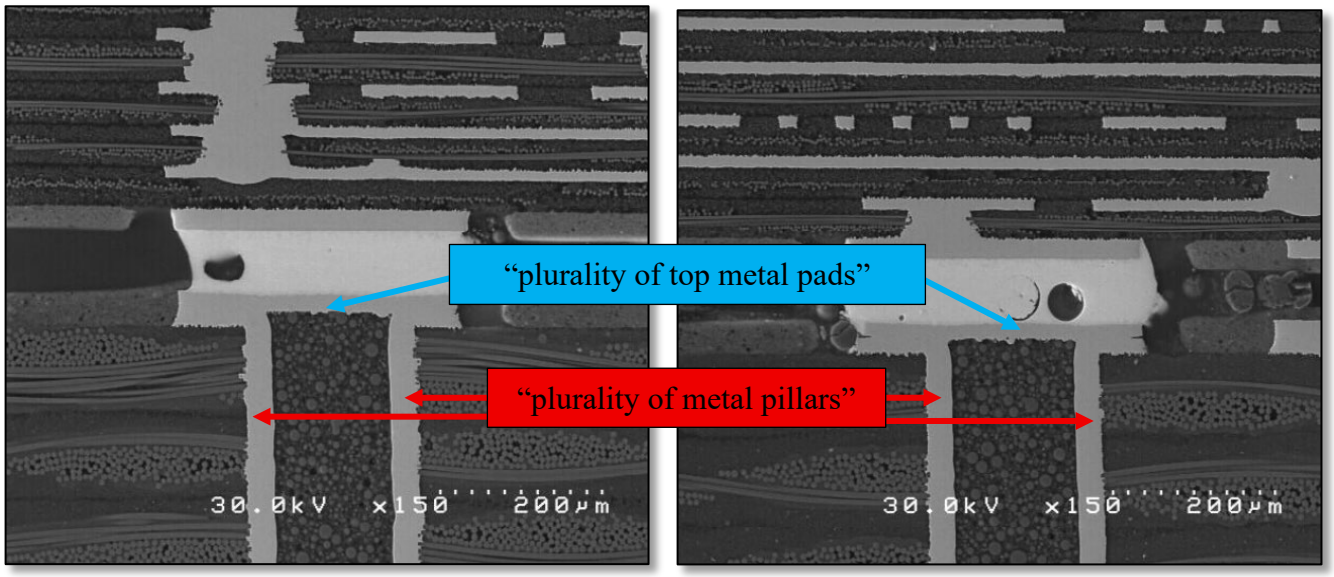
'202 Claim 1	Elements in Accused Smartphones
[1d-pre] wherein the spacer connector comprises:	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. See below.

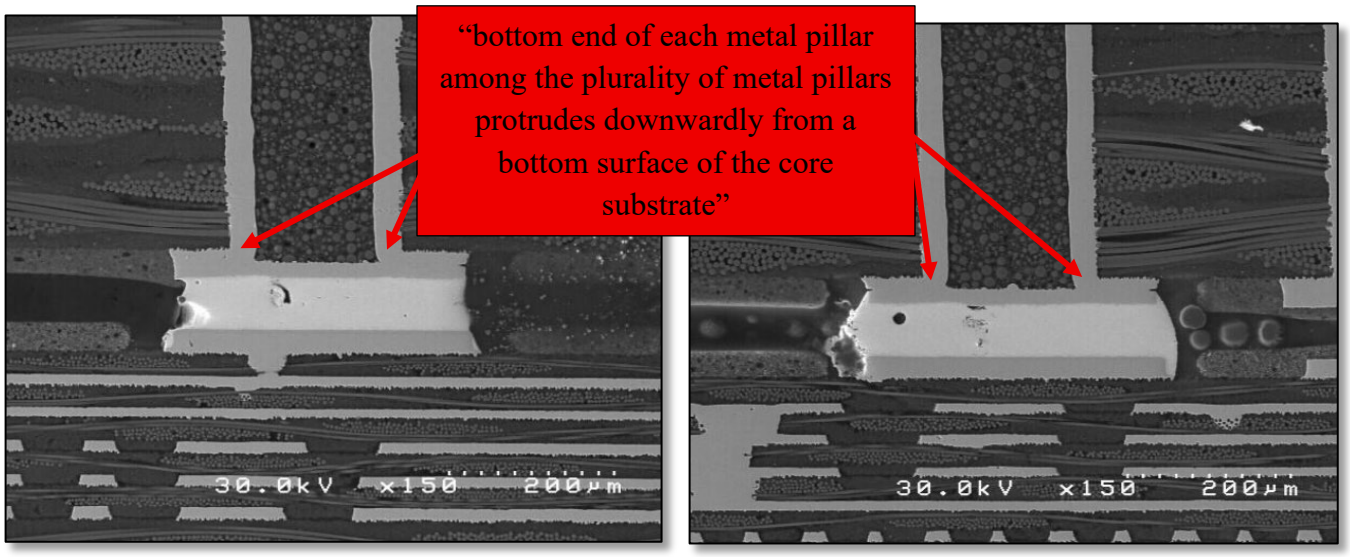
'202 Claim 1	Elements in Accused Smartphones
[1d-1] a core substrate;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a core substrate, such as a silicon substrate or any other suitable core substrate. For example, the at least one spacer connector of the Samsung Galaxy Z Flip6 comprises a core substrate:  (optical view showing the core substrate)

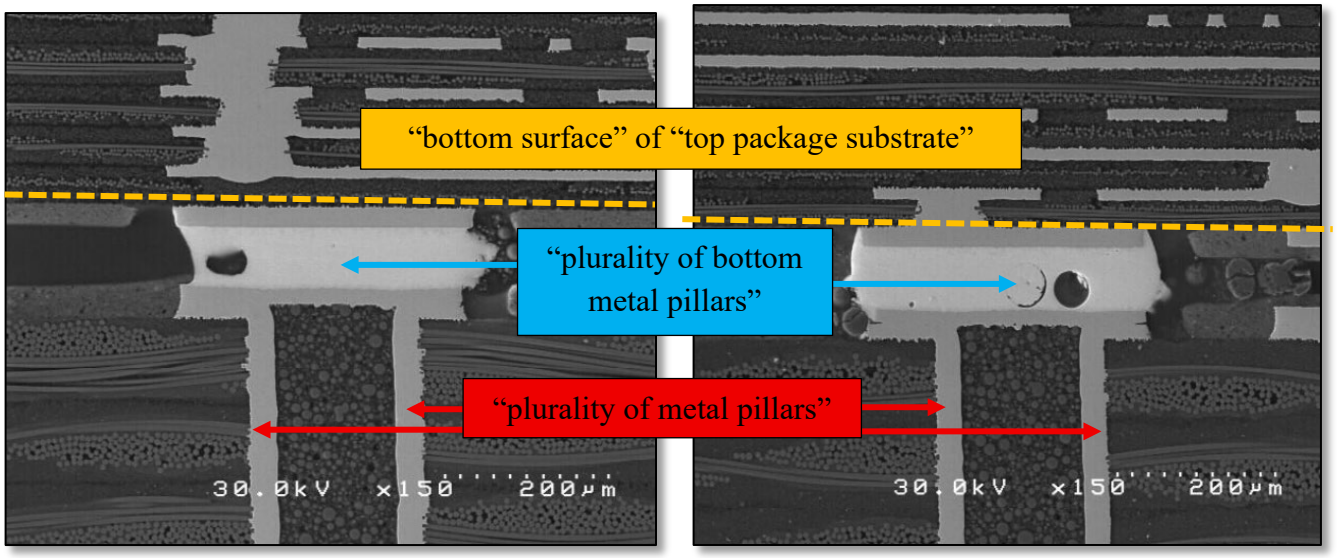
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the core substrate)

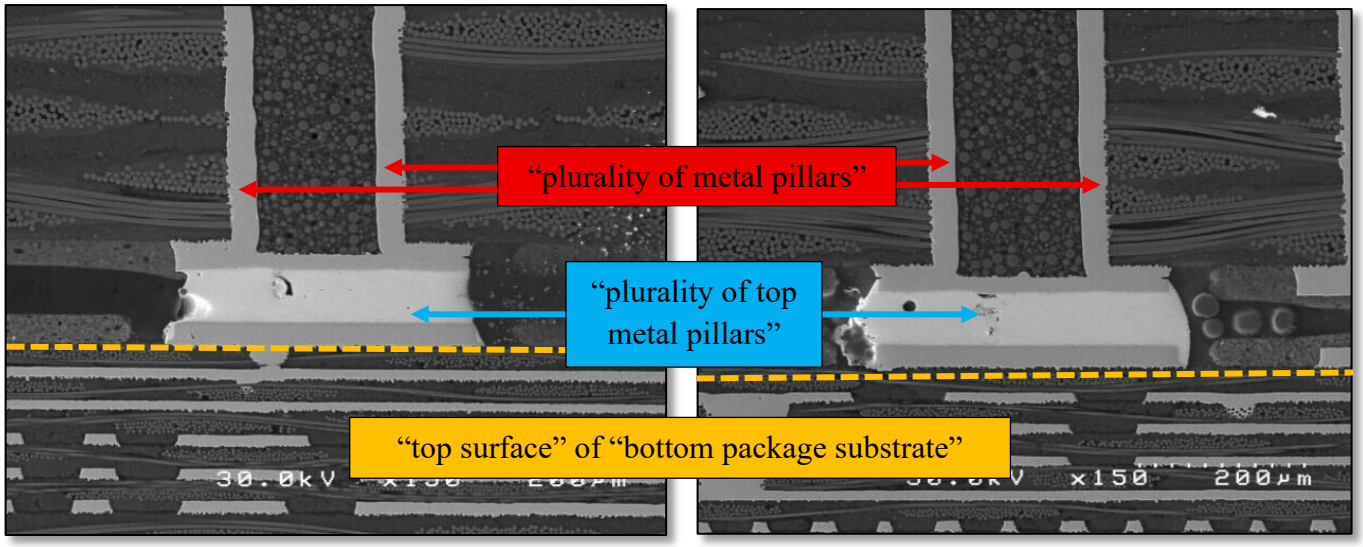
'202 Claim 1	Elements in Accused Smartphones
[1d-2] a plurality of metal pillars, each passing through the core substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of metal pillars, each passing through the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of metal pillars, such as copper pillars or any other suitable metal pillars. Each of the plurality of metal pillars passes through (*e.g.*, intersects) the core substrate. For example, the at least one spacer connector of the Samsung Galaxy Z Flip6 comprises a plurality of metal pillars, each passing through the core substrate:  (optical view showing the plurality of metal pillars, each passing through the core substrate)

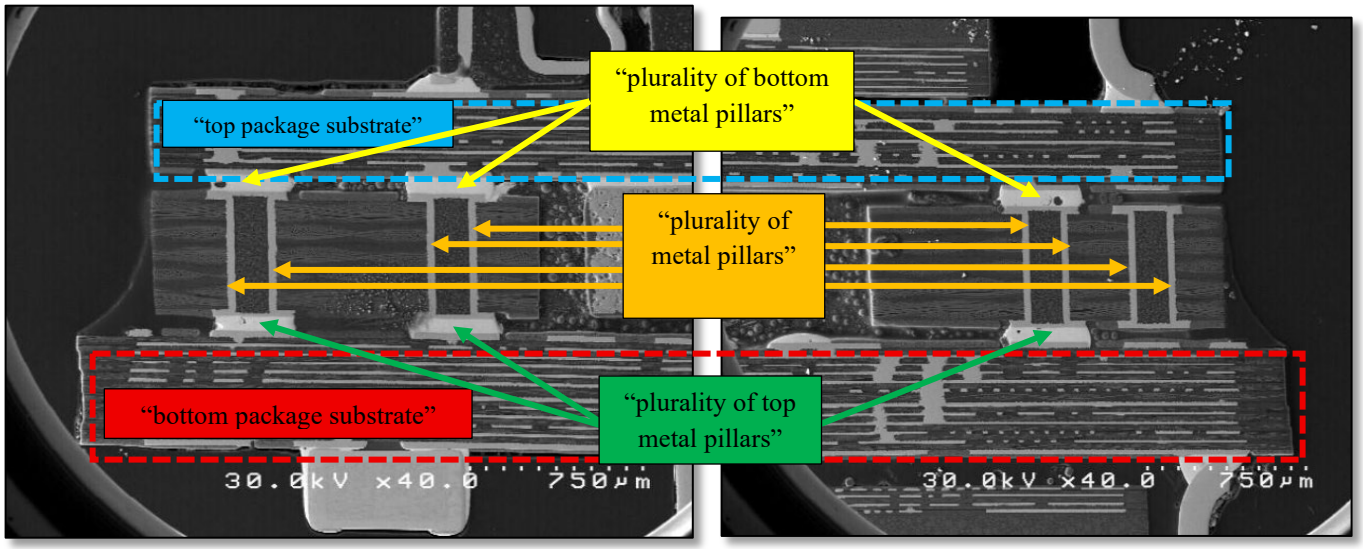
'202 Claim 1	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the plurality of metal pillars, each passing through the core substrate)

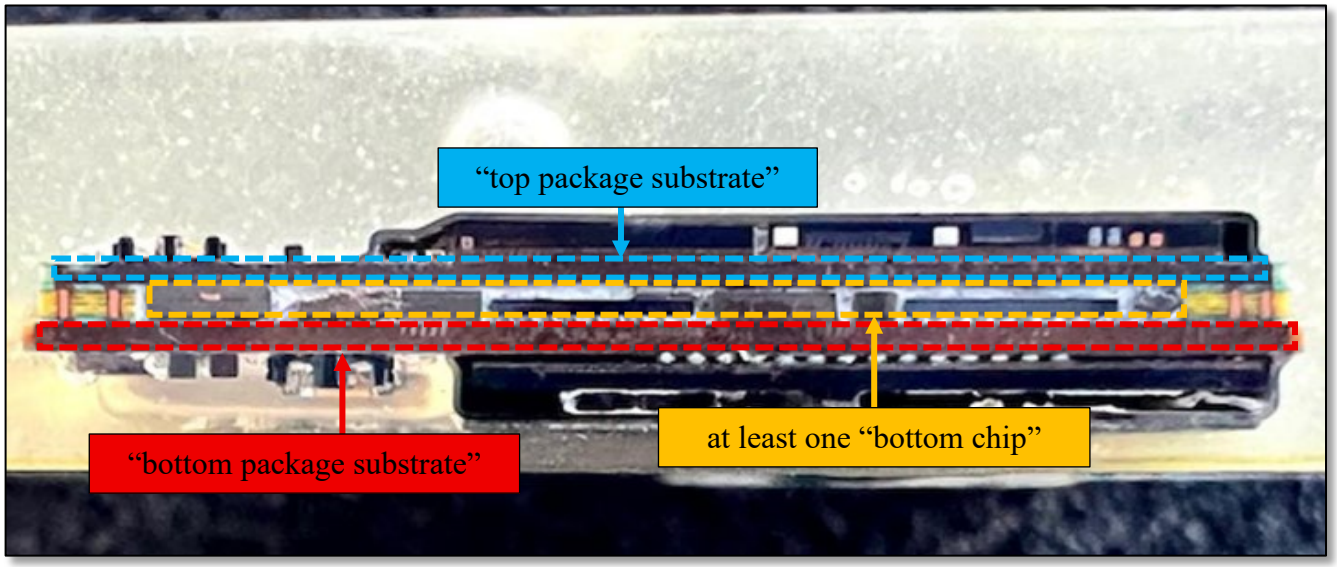
'202 Claim 1	Elements in Accused Smartphones
[1d-3] a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars;	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. The at least one spacer connector includes a plurality of top metal pads, such as copper metal pads or any other suitable metal pads. Each of the plurality of metal pads are connected to a top end of a corresponding metal pillar among the plurality of metal pillars. For example, the at least one spacer connector of the Samsung Galaxy Z Flip6 comprises a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars:  (scanning electron microscope ("SEM") view showing the plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars)

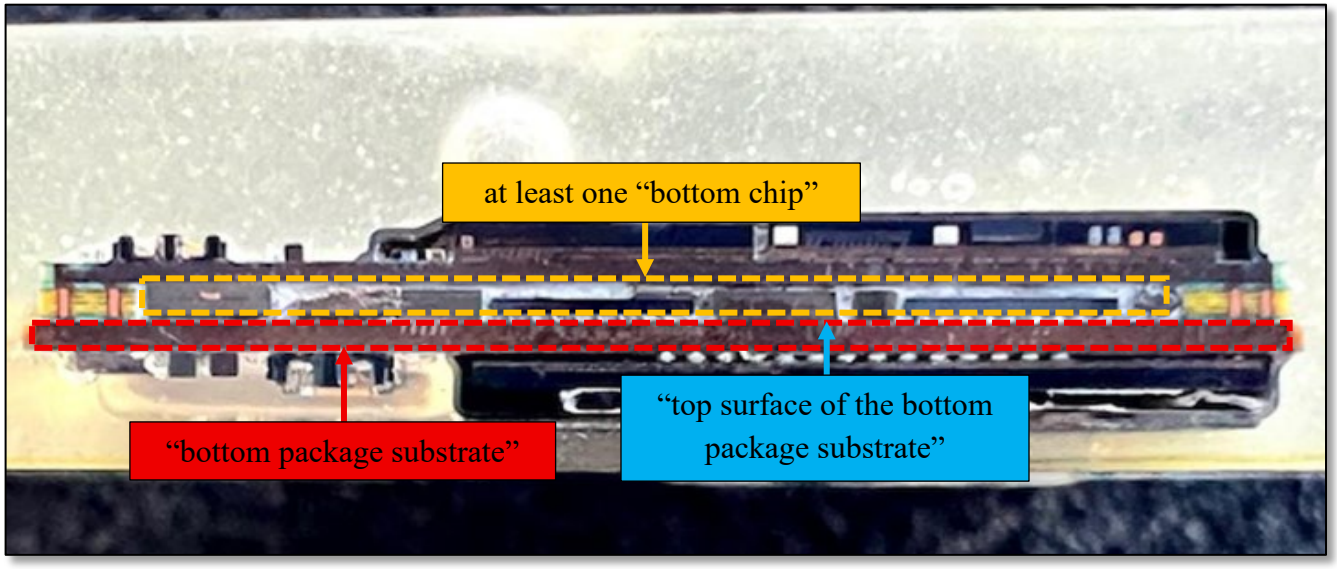
'202 Claim 1	Elements in Accused Smartphones
[1d-4] wherein a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. In the at least one spacer connector of Samsung's Accused Smartphones, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes at least one spacer connector. In the at least one spacer connector, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from (*e.g.*, extends past) a bottom surface of the core substrate. For example, in the at least one spacer connector of the Samsung Galaxy Z Flip6, a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate:  (scanning electron microscope ("SEM") view showing the bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate)

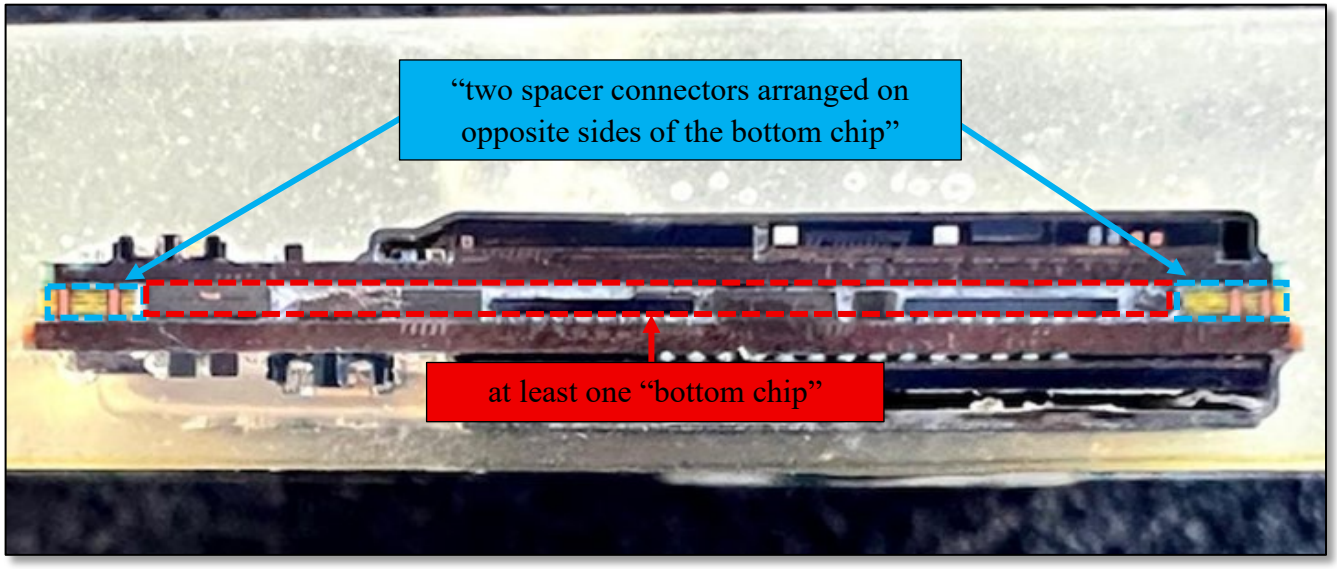
'202 Claim 1	Elements in Accused Smartphones
[1e] the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate has a bottom surface. Additionally, a plurality of bottom metal pillars, such as tin metal pillars or any other suitable bottom metal pillars, are connected to the bottom surface of the top package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the top package substrate of the Samsung Galaxy Z Flip6 has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

'202 Claim 1	Elements in Accused Smartphones
[1f] the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom package substrate of Samsung's Accused Smartphones has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom package substrate has a top surface. Additionally, a plurality of top metal pillars, such as tin metal pillars or any other suitable top metal pillars, are connected to the top surface of the bottom package substrate and a corresponding metal pillar among the plurality of metal pillars of the spacer connector. For example, the bottom package substrate of the Samsung Galaxy Z Flip6 has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector:  (scanning electron microscope ("SEM") view showing the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector)

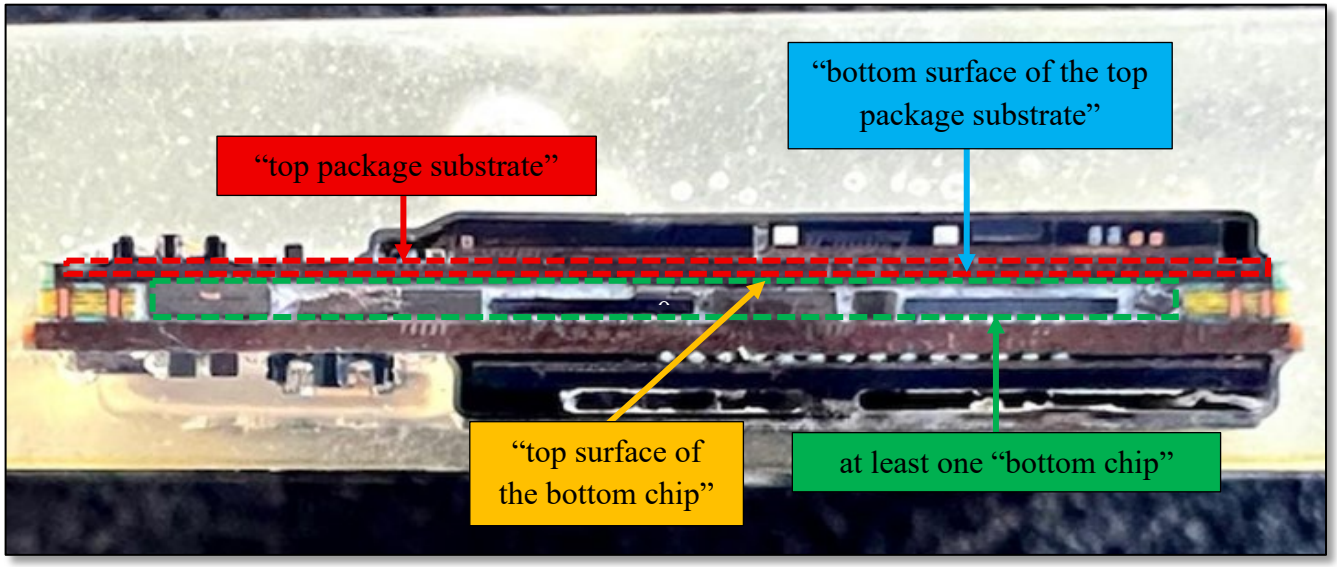
'202 Claim 1	Elements in Accused Smartphones
[1g] the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate; and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The top package substrate of Samsung's Accused Smartphones is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the top package substrate is electrically coupled to the bottom package substrate. Additionally, current flows between the top package substrate and the bottom package substrate via the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate, all of which are electrically coupled together. For example, the top package substrate of the Samsung Galaxy Z Flip6 is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate:  (scanning electron microscope ("SEM") view showing the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1h] a bottom chip arranged in the space between the bottom package substrate and the top package substrate,	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, arranged between the space between the bottom package substrate and the top package substrate formed by the at least one spacer connector. For example, the Samsung Galaxy Z Flip6 comprises a bottom chip arranged in the space between the bottom package substrate and the top package substrate:  (optical view showing the bottom chip arranged in the space between the bottom package substrate and the top package substrate)

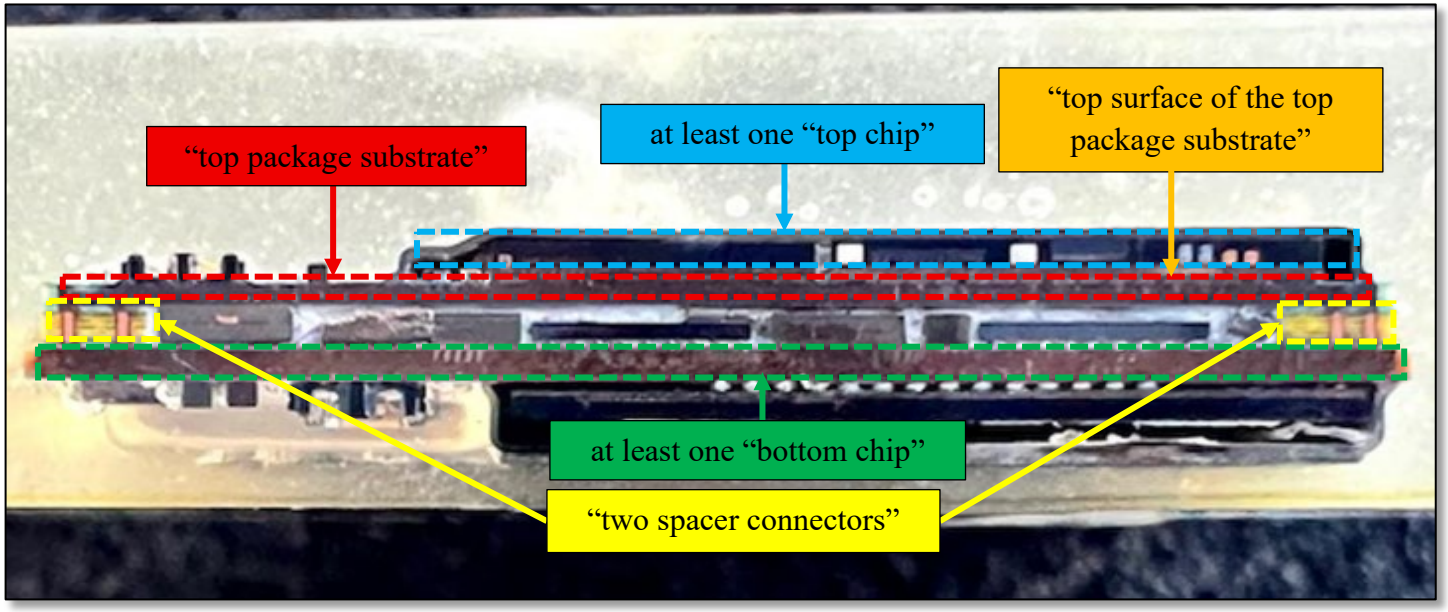
'202 Claim 1	Elements in Accused Smartphones
[1i] the bottom chip is mounted to the top surface of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a bottom chip arranged mounted to the top surface of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a bottom chip, such as a logic chip or any other suitable bottom chip, mounted to the top surface of the bottom package substrate. For example, the bottom chip of the Samsung Galaxy Z Flip6 is mounted to the top surface of the bottom package substrate:  (optical view showing the bottom chip mounted to the top surface of the bottom package substrate)

'202 Claim 1	Elements in Accused Smartphones
[1j] the at least one spacer connector comprises two spacer connectors arranged on opposite sides of the bottom chip.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The at least one spacer connector of Samsung's Accused Smartphones comprises two spacer connectors arranged on opposite sides of the bottom chip. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the at least one spacer connector includes two spacer connectors arranged on opposite sides of the bottom chip. For example, the at least one spacer connector of the Samsung Galaxy Z Flip6 comprises two spacer connectors arranged on opposite sides of the bottom chip:  (optical view showing the at least one spacer connector comprising two spacer connectors arranged on opposite sides of the bottom chip)

"2. The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate."

'202 Claim 2	Elements in Accused Smartphones
[2] The structure of claim 1, wherein a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. The bottom chip of Samsung's Accused Smartphones has a top surface that is spaced downwardly from the bottom surface of the top package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom chip has a top surface that is spaced downwardly from the bottom surface of the top package substrate. For example, in the Samsung Galaxy Z Flip6, a top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate:  (optical view showing the top surface of the bottom chip is spaced downwardly from the bottom surface of the top package substrate)

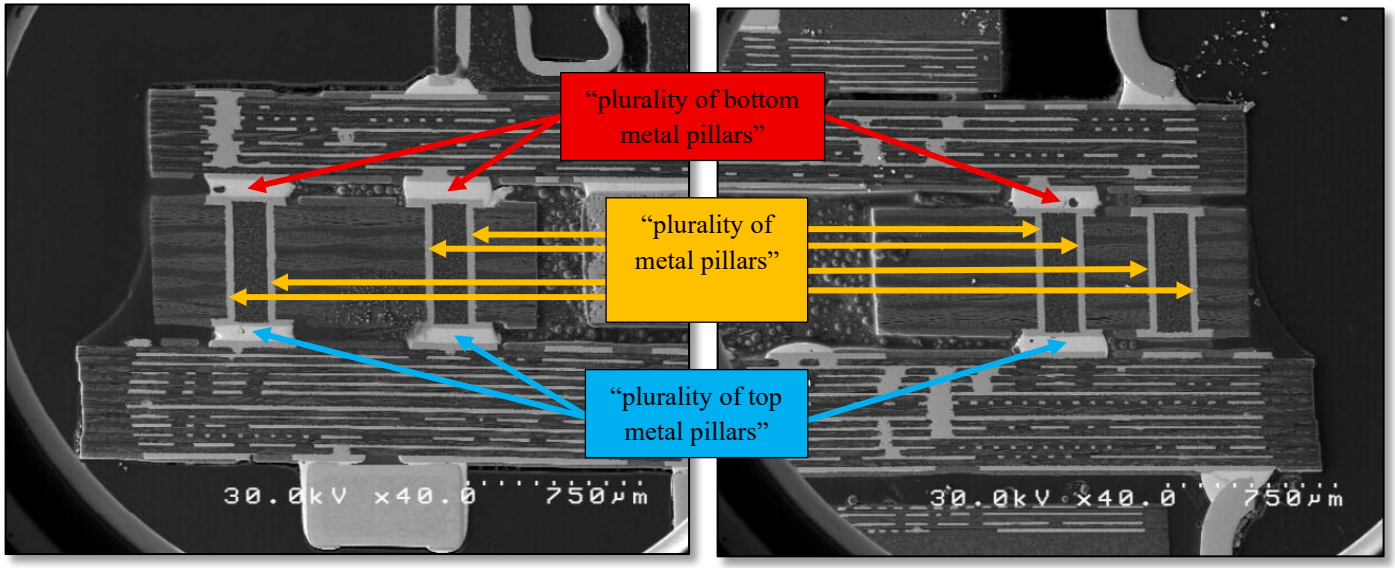
"3. The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors."

'202 Claim 3	Elements in Accused Smartphones
[3] The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors.	TopWire incorporates the disclosures set forth for Claims 1 and 2 as if set forth herein. The structure of Samsung's Accused Smartphones comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a top chip, such as a memory chip or any other suitable top chip, mounted to the top surface of the top package substrate. The top package substrate is stacked on top of the bottom package substrate such that the top chip overlaps the bottom chip and each of the two spacer connectors. For example, the Samsung Galaxy Z Flip6 comprises a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors: 

"3. The structure of claim 2, further comprising: a top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors."

'202 Claim 3	Elements in Accused Smartphones
	(optical view showing the top chip mounted to the top surface of the top package substrate, wherein in a direction in which the top package substrate is stacked on top of the bottom package substrate, the top chip overlaps the bottom chip and each of the two spacer connectors)

"4. The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate."

'202 Claim 4	Elements in Accused Smartphones
[4] The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate.	TopWire incorporates the disclosures set forth for Claim 1 as if set forth herein. Each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned (*e.g.*, vertically aligned) with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate. For example, each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy Z Flip6 is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate: 

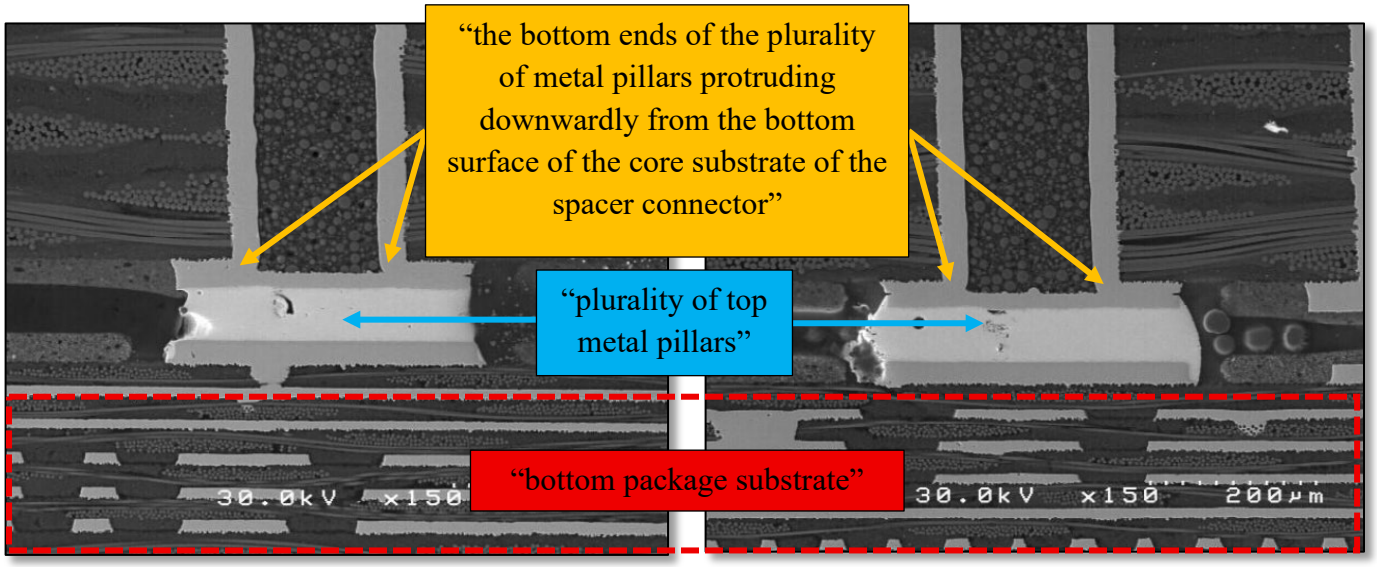
"4. The structure of claim 1, wherein each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate is aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate."

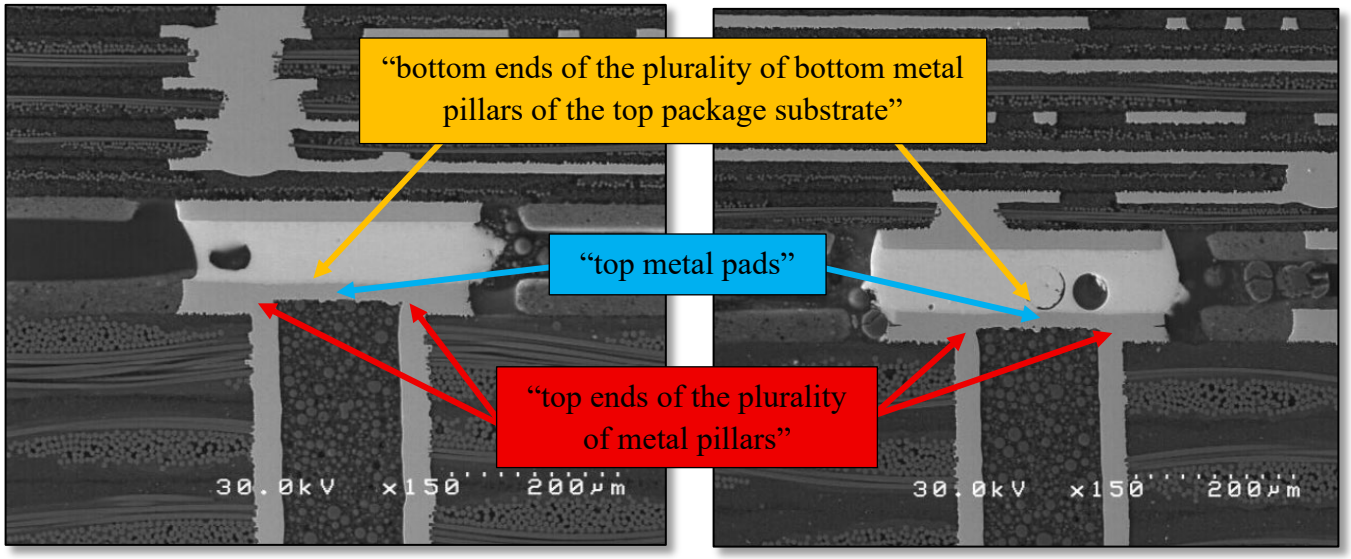
'202 Claim 4	Elements in Accused Smartphones
	(scanning electron microscope ("SEM") view showing each bottom metal pillar among the plurality of bottom metal pillars of the top package substrate aligned with a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and with a corresponding top metal pillar among the plurality of top metal pillars of the bottom package substrate)

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

'202 Claim 6	Elements in Accused Smartphones
[6a] The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in Samsung's Accused Smartphones are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector. The plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate. For example, the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector in the Samsung Galaxy Z Flip6 are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate:

"6. The structure of claim 4, wherein the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate, and"

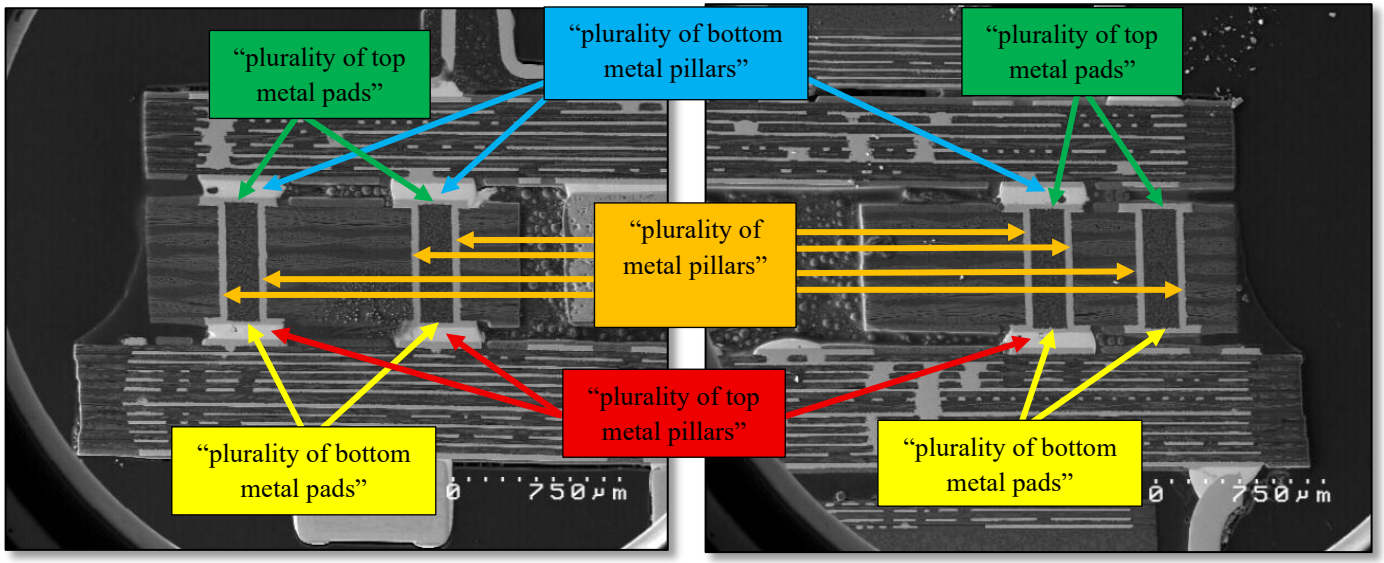
'202 Claim 6	Elements in Accused Smartphones
	 (scanning electron microscope ("SEM") view showing the bottom ends of the plurality of metal pillars protruding downwardly from the bottom surface of the core substrate of the spacer connector are connected, in an end-to-end manner, to corresponding top ends of the plurality of top metal pillars of the bottom package substrate)

'202 Claim 6	Elements in Accused Smartphones
[**6b**] bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector.	TopWire incorporates the disclosures set forth for Claims 1, 4, and 6 as if set forth herein. The bottom ends of the plurality of bottom metal pillars of the top package substrate in Samsung's Accused Smartphones are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. In the motherboard, the bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the bottom ends of the plurality of bottom metal pillars of the top package substrate in the Samsung Galaxy Z Flip6 are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:  (scanning electron microscope ("SEM") view showing bottom ends of the plurality of bottom metal pillars of the top package substrate that are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

'202 Claim 9	Elements in Accused Smartphones
[9] The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via	TopWire incorporates the disclosures set forth for Claims 1 and 4 as if set forth herein. The spacer connector in Samsung's Accused Smartphones further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. *E.g.*, The structure of Samsung's Accused Smartphones includes a motherboard. The motherboard in Samsung's Accused Smartphones includes a spacer connector. The spacer connector further includes a plurality of bottom metal pads, such as copper metal pads or any other suitable bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars. The bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector. For example, the spacer connector in the Samsung Galaxy Z Flip6 further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector:

"9. The structure of claim 4, wherein the spacer connector further comprises a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars are connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate are connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector."

'202 Claim 9	Elements in Accused Smartphones
the corresponding top metal pads of the spacer connector.	 (scanning electron microscope ("SEM") view showing the spacer connector further comprising a plurality of bottom metal pads, each on the bottom end of a corresponding metal pillar among the plurality of metal pillars, the bottom ends of the plurality of metal pillars being connected to corresponding top ends of the plurality of top metal pillars of the bottom package substrate via the corresponding bottom metal pads of the spacer connector, and bottom ends of the plurality of bottom metal pillars of the top package substrate being connected to the corresponding top ends of the plurality of metal pillars of the spacer connector via the corresponding top metal pads of the spacer connector)