

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD. AND SAMSUNG ELECTRONICS
AMERICA, INC.,

Petitioners,

v.

AQ CORPORATION,

Patent Owner.

CASE: IPR2026-00234

U.S. PATENT NO. 11,728,564

PATENT OWNER'S PRELIMINARY SUR-REPLY

TABLE OF PATENT OWNER EXHIBITS

Exhibit No.	Description
2001	AQ Email to Samsung dated Nov. 8, 2021 (Original and Certified Translation)
2002	AQ Email dated Dec. 2, 2021 (Original and Certified Translation)
2003	Preliminary Amendment dated Nov. 5, 2021
2004	Samsung Electronics' 2025 Interim Business Report
2005	Samsung C&T Corp., 2024 Corporate Governance Report
2006	LexMachina Analysis – Judge Gilstrap
2007	<i>AQ Corp. v. Samsung Elecs. Co., Ltd. et al.</i> , Case No. 2:25-cv-01012-JRG, Dkt. No. 23 (E.D. Tex. Feb. 4, 2026) (Docket Control Order)
2008	Notice of References Cited dated January 30, 2023
2009	U.S. Patent App. No. 2010/0309081 to Kobayashi et al. (“ <i>Kobayashi</i> ”)
2010	U.S. Patent App. No. 2014/0339915 to Kanno et al. (“ <i>Kanno</i> ”)
2011	Statutory Disclaimer of U.S. Patent No. 11,728,564
2012	Declaration of Dr. David S. Ricketts
2013	<i>Curriculum Vitae</i> of Dr. David S. Ricketts

Petitioner's supplemental paper raises new theories based on previously uncited portions of *Kang* (Ex. 1012) and should be discounted. It does not, and cannot, show that *Kang* teaches a parallel connection between an inner and outer coil located on the same surface of a substrate. Instead, Petitioner improperly dissects the claim language into isolated terms, ignoring that the claimed structure requires an inner and outer coil on the same surface connected in parallel.

Claims 8 and 16¹ of the '564 Patent requires "a first antenna pattern formed on the first major surface and comprising an inner coil formed on the first inner ring portion and an outer coil on the first outer ring portion;" "wherein the inner coil and the outer coil are electrically connected in parallel." Ex. 1001, Cls. 8, 16. *Kang* does not disclose this unified structure, and Petitioner identifies no such teaching in any prior art reference.

Petitioner alleged an inconsistency between Exhibit 2001 and the POPR, yet it fails to identify any actual inconsistency. The portion of Exhibit 2001 identified by Petitioner refers to an entirely different multi-layer structure of parallel connection rather than the claimed structure. The Petition fails to carry its burden and should be denied.

¹ As Petitioner notes, the remaining claims of the '564 Patent have been disclaimed without prejudice. Ex. 2011.

I. PETITION’S NEW RELIANCE ON PARAGRAPH 260 OF *KANG*

Petitioner’s request for supplemental briefing was based on Exhibit 2001’s characterization of the highlighting on page 214, which corresponds to paragraph 260 of *Kang*. *Compare* Ex. 2001, 214 (highlighted passage) *with* Ex. 1012, ¶ 260. Petitioner does not dispute or respond to the fact that the Petition does not rely on paragraph 260 of *Kang*. In fact, nowhere in its paper does Petitioner even mention 260. This further confirms that the alleged request to characterize paragraph 260 of *Kang* is much ado about information not relied on in the Petition at all.

Rather than address the purported inconsistency, Petitioner spends nearly three pages addressing paragraphs 214, 216, 217, 238, and 261-266, paragraphs cited in the Petition. These paragraphs however, are not identified by Petitioner as allegedly inconsistent. This places Petitioner’s Reply squarely outside the scope of the authorization allowing the Reply in the first place.

II. EXHIBIT 2001 IS FACIALLY CLEAR

Petitioner attempts to read language not present in Exhibit 2001 into the email communication. Exhibit 2001 is clear. Mr. Choi stated “Technical section related to parallel structure antenna patent: Please refer to the yellow-highlighted section on page 65 of the attached 10547112,” yet he makes no mention of single-surface inner and outer coil structures connected in parallel. Ex. 2001, 149.

This yellow-highlighted portion, reproduced below, is equally clear:

Coils Printed in Multiple Layers of Flexible PCB

The flexible PCB may include two or more layers. For example, a coil (at least one turn of printed line) is formed in one layer, and another coil is formed in another layer. Further, another coil may be formed in another layer of the two or more layers. One or more vias interconnect these coils such that these coils form a serial connection for providing a serially connected coil antenna. In other embodiment, two or more coils of different layers are connected by parallel connection to provide two more coil antennas that are parallel connected. In one embodiment, a coil is formed in each of the two or more layers. In another embodiment, at least one layer of the flexible PCB does not include a coil.

Ex. 2001, 214. This passage describes coils formed on “multiple layers” of a PCB, not an inner and outer coil on the same surface, and is irrelevant to the claimed structure.

III. KANG’S DISCLOSURE

Nothing in *Kang* discloses an inner and outer coil on the same surface connected in parallel. See Ex. 1001, Cls. 8, 16. Paragraphs 214, 216, and 217 describe only coils arranged on different layers or configurations without any teaching of a same-surface inner/outer parallel connection.

Paragraph 214 is clear that the connections are either between coils arranged side-by-side or overlapping when viewed from the side (i.e., one coil on one surface the second coil on an opposite surface), but not an inner and outer coil on the same surface connected in parallel. Ex. 1012, ¶ 214. Paragraph 216 describes coils where

one surrounds the other and side-by-side, but provides no teaching of how those coils are electrically connected. Ex. 1012, ¶ 216. Similarly, Paragraph 217 simply describes that parallel connections are possible between antenna coils as shown in Fig. 24B, but does not provide any teaching of an inner and outer coil connected in parallel where the inner and outer coil are on the same surface. Ex. 1012, ¶ 217.

Critically, *Kang* does not disclose the through-wiring required to implement such a same-surface parallel configuration. It was not until the '564 Patent's priority filing that this first was proposed and described. *See* Ex. 1001, Figs. 47-49, 51-54c; *see also id.* 41:50-42:33. Petitioner, unable to find the actually claimed structure in the prior art, seeks to cobble together discrete words: "parallel," "coil," "surface," "inner," and "outer," to allege obviousness. However, there is no description of the claimed structure in *Kang* (or any other reference). Nor does Petitioner identify any motivation for a skilled artisan to modify *Kang* to achieve the claimed configuration—an inner and outer coil on the same surface connected in parallel—particularly where *Kang* consistently teaches multi-layer or differently arranged coil structures. This is particularly egregious where *Kang* consistently teaches distinct multi-layer or differently arranged coil structures. For example, Petitioner's repeated citation to and reliance on Figure 24B simply shows what a parallel connection is. It does not provide any actual teaching of the claimed coil structure.

As a result, Petitioner's reading of *Kang* requires expert reconstruction not

grounded in *Kang* or any other reference.

IV. CONCLUSION

Petitioner fails to meet its burden because *Kang* does not disclose or suggest an inner and outer coil on the same surface connected in parallel. Nor does Petitioner identify any motivation to combine disparate disclosures to arrive at the claimed configuration, instead relying on impermissible hindsight. The '564 Patent claims a novel and non-obvious coil structure that is not present in the prior art and the Petition should be denied.

Dated: June 12, 2026

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on June 12, 2026, I caused a true and correct copy of the foregoing to be served on the following counsel of record for Petitioner by electronic mail to the following addresses:

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