

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO. LTD.,
Petitioner,

v.

HEADWATER RESEARCH LLC,
Patent Owner.

Case IPR2024-00010
Patent 9,615,192

**PETITIONER'S REPLY TO
PATENT OWNER'S RESPONSE**

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PETITIONER'S EXHIBIT LIST

SAMSUNG-1001	U.S. Patent No. 9,615,192 to Raleigh (“the ’192 Patent”)
SAMSUNG-1002	Excerpts from the Prosecution History of the ’192 Patent (“the Prosecution History”)
SAMSUNG-1003	Declaration and Curriculum Vitae of Dr. Patrick Traynor
SAMSUNG-1004	3GPP TS 23.140 v6.9.0 (2005-03); 3rd Generation Partnership Project; Technical Specification Group Terminals; Multimedia Messaging Service (MMS); Functional Description; Stage 2 (“TS-23.140”)
SAMSUNG-1005	U.S. Patent Pub. No. 2006/0190720 to Ozaki et al. (“Ozaki”)
SAMSUNG-1006	WO 2008/048075 A1 to Lee et al. (“Lee”)
SAMSUNG-1007	WO 2006/077283 A1 to Houghton et al (“Houghton”)
SAMSUNG-1008	RESERVED
SAMSUNG-1009	U.S. Patent No. 7,925,717 to Chou et al. (“Chou”)
SAMSUNG-1010	Open Mobile Alliance; Multimedia Messaging Service Architecture Overview (MMSARCH) specification, <i>available at</i> https://www.openmobilealliance.org/release/MMS/V1_1-20040715-A/OMA-WAP-MMS-ARCH-V1_1-20040715-A.pdf
SAMSUNG-1011	Open Mobile Alliance; OMA-ERELD-MMS-v1_2-20030923-C, Enabler Release Definition for MMS Version 1.2,” <i>available at</i> https://www.openmobilealliance.org/release/MMS/V1_2-

[20030923-C/OMA-ERELD-MMS-V1_2-20030923-C.pdf](#)

SAMSUNG-1012	U.S. Patent No. 7,509,487 to Lu et al. (“Lu”)
SAMSUNG-1013	Technical Specification Group Services and System Aspects Meeting #19, TSGS#19(03)0167, European Telecommunications Standards Institute February 2003 (available at <u>https://www.3gpp.org/ftp/tsg_sa/TSG_SA/TSGS_19/Docs/PDF/SP-030167.pdf</u>)
SAMSUNG-1014	U.S. Patent Pub. No. 2005/0207379 to Shen et al. (“Shen”)
SAMSUNG-1015	U.S. Patent Pub. No. 2009/0282256 to Rakic et al. (“Rakic”)
SAMSUNG-1016	Declaration of Friedhelm Rodermund
SAMSUNG-1017	U.S. Patent Pub. No. 2009/0240807 A1 (“Munson”)
SAMSUNG-1018	EP Patent Application EP1853044B1 to Shenfield (“Shenfield”)
SAMSUNG-1019	U.S. Patent No. 7,082,615 B1 (“Ellison”)
SAMSUNG-1020	Memorandum, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings, June 21, 2022, available at <u>https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621.pdf</u>

SAMSUNG-1021	Docket Control Order, <i>Headwater Research LLC v. Samsung Electronics Co.</i> , 2:23-cv-00103-JRG-RSP (EDTX), filed October 27, 2023
SAMSUNG-1022	RESERVED
SAMSUNG-1023	Samsung Stipulation letter regarding IPR grounds in District Court Litigation
SAMSUNG-1024	RESERVED
SAMSUNG-1025	RESERVED
SAMSUNG-1026	RESERVED
SAMSUNG-1027	IETF RFC 793, Transmission Control Protocol (Sept. 1981) (available at https://www.ietf.org/rfc/rfc793.txt)
SAMSUNG-1028	The TLS Protocol Version v 1.0 (Jan. 1999) (available at https://datatracker.ietf.org/doc/html/rfc2246)
SAMSUNG-1029	Complaint for Patent Infringement, <i>Headwater Research LLC v. Samsung Electronics Co.</i> , Case No. 2:23-cv-00103 (Dkt. 1, Mar. 10, 2023)
SAMSUNG-1030	Needham et al., “Using Encryption for Authentication in Large Networks of Computers” (ACM, Vol. 21, No. 12, Dec. 1978) (“Needham”)
SAMSUNG-1031	Schroeder et al., “A Hardware Architecture for Implementing Protection Rings” (ACM, Vol. 15, No. 3, Mar. 1972) (“Schroeder”)
SAMSUNG-1032	Saltzer et al., “The Protection of Information in Computer Systems” (IEEE Proceedings, Vol. 63, No. 9, Sept. 1975) (“Saltzer”)

SAMSUNG-1033	Li et al., “Symbian OS platform security model,” available at https://www.usenix.org/system/files/login/articles/73507-li.pdf (Login Magazine, Aug. 2010)
SAMSUNG-1034	Philip Zimmermann, “Pretty Good Privacy: RSA Public Key Cryptography for the Masses” PGP User’s Guide. Version 1.0, June 1991), available at https://www.tech-insider.org/free-software/research/acrobat/910605.pdf (“Zimmerman”)
SAMSUNG-1035	B. Ramsdell, S/MIME Version 3 Message Specification, IETF RFC 2633, June 1999, available at https://datatracker.ietf.org/doc/html/rfc2633 (“Ramsdell”)
SAMSUNG-1036	Mostafa, “Transporting data between wireless applications using a messaging system—MMS” (Wireless Comms. and Mobile Computing, July 7, 2006) (“Mostafa”)
SAMSUNG-1037	Proof of Service, <i>Headwater Research LLC v. Samsung Electronics Co.</i> , Case No. 2:23-cv-00103 (Dkt. No. 6, Mar. 15, 2023)
SAMSUNG-1038	Stipulation
SAMSUNG-1039	Supplemental Declaration of Dr. Patrick Traynor
SAMSUNG-1040	<i>Wiley Electrical And Electronics Engineering Dictionary</i> by IEEE Press (2004) (excerpted)
SAMSUNG-1041	<i>Shorter Oxford English Dictionary</i> (6 th Ed 2007) (excerpted)

SAMSUNG-1042	<i>Dictionary of Computer Science, Engineering, and Technology</i> (2001) (excerpted)
SAMSUNG-1043	IPR Petition for U.S. Patent 9,198,117 in IPR2024-00003
SAMSUNG-1044	Deposition Transcript of Dr. Michael C. Brogioli
SAMSUNG-1045	U.S. Patent Pub. No. 2004/0148237 to Bittmann et al. (“Bittmann”)

Petitioner submits this Reply to Headwater's ("PO") Patent Owner Response ("POR") for the '192 Patent.

I. CLAIM CONSTRUCTION – PERIODIC TIMER

Claim 9 recites that "expiration of a periodic timer" is a "message delivery trigger." Per PO, the Petition applies this term "inconsistent" with its plain and ordinary meaning, which PO asserts is a timer that "recurs regularly." POR, 3, 7-8, 32. This argument fails.

First, PO is incorrect that the plain and ordinary meaning of "periodic timer" is limited to a timer that recurs regularly. *See id.* As a starting point, the '192 Patent does not define this term—as PO acknowledges. *Id.* PO supports its interpretation using a single dictionary that "defines 'periodic' as... 'pertaining to a series of specified waveforms or features which *repeat or recur regularly... in time*,' as opposed to 'aperiodic' in which the 'waveforms or features repeat or recur... *irregularly in time*.'" *Id.* (emphasis in original). This definition, however, is for "pulse terminology" (EX-2004, 13)—which is not the same field/context as the '192 Patent. SAMSUNG-1039, ¶¶11-12.

Other dictionaries—including an English-language dictionary and one from a relevant technical field—define "periodic" as occurring on regular or irregular/any intervals. *See* SAMSUNG-1040, 3 (defining "periodic" as "[o]ccurring, appearing,

or characterized by regular *and repetitive intervals [or] by irregular intervals*”¹); SAMSUNG-1041, 3 (defining “periodic” as “recurring or reappearing at *regular or any* intervals (of time or space)”). Even the ’192 specification describes an embodiment that uses “periodic” in a manner that encompasses irregular recurrence. *See* SAMSUNG-63:5-16; SAMSUNG-1039, ¶¶13-14.² Thus, the plain and ordinary meaning of “periodic timer” encompasses a *timer that recurs regularly or irregularly*. SAMSUNG-1039, ¶¶16, 18.

Second, PO is incorrect that Petitioner’s invalidity theories read out the term “periodic.” POR, 9. This assertion stems from a mischaracterization of the Petition. *See* §III.A *infra*. Additionally, PO’s reliance on Dr. Traynor’s deposition testimony fails. Per PO, Dr. Traynor testified “that ‘expiration of a periodic timer’ might even be satisfied by a ‘user looking at the clock and waiting’ until a particular time had passed before they sent a message.” POR, 9 (citing EX-2003, 17:14-18:7). This, however, omits testimony—in the same line of questioning—where Dr. Traynor explained this was a hypothetical and that it was “hard to say” whether this

¹ Emphasis added unless otherwise noted.

² PO’s reliance on Samsung’s patents also fails because those references do not support limiting “periodic” as PO proposes. SAMSUNG-1039, ¶15; EX-2005, EX-2006; POR, 7-8.

constitutes an expiration of a periodic timer. EX-2003, 17:25-18:15; SAMSUNG-1039, ¶17. PO also omits Dr. Traynor’s testimony that he “think[s] of these triggers as... set in the technology”—confirming that the hypothetical of simply looking at a clock and waiting is inapplicable. *Id.*

II. TS-23.140 RENDERS OBVIOUS INDEPENDENT CLAIMS 1 AND 15

The Petition identified multiple message delivery triggers in TS-23.140, including (1) automated and manual message retrieval requests from a MMS User Agent, (2) specification of a message size restriction, (3) recipient MMS User Agent becoming available/reachable over a network, (4) MMS Relay/Server sending a message notification to the recipient User Agent, and (5) additional message delivery triggers specified for dependent claims (e.g., claims 9, 13). (Petition, 21-22, 30-33)³.

Per PO, TS-23.140 only teaches “a single message delivery trigger—the receipt of a valid retrieval request from the MMS User Agent”—and that the Petition’s other-identified triggers are not message delivery triggers. POR, 11-23. As explained below, these arguments fail because (1) message retrieval requests (which PO admits are message delivery triggers) can be automated or manual, and thereby constitute a plurality of message delivery triggers, and (2) the other-

³ Contrary to PO’s assertions (POR, 22-23), Petitioner was not seeking to modify the message delivery triggers in TS-23.140.

identified triggers are message delivery triggers consistent with the '192's disclosures. SAMSUNG-1039, ¶¶19-30; SAMSUNG-1001, 70:6-30, 38:30-39:19.

A. TS-23.140's automated and user-requested message retrieval requests are multiple message delivery triggers

As the Petition explains, message delivery happens upon the occurrence of one or more triggers, including when “the MMS User Agent ... retrieve[s] the MM, *either automatically or manually*, where the ‘retrieval mode is based on user settings or the recommendation in the notification.’” See Petition, 21-22⁴ (citing SAMSUNG-1004, §7.1.2.1).

PO admits that a message retrieval request is a message delivery trigger. See POR, 11. PO does not dispute that a user-requested retrieval request is a message delivery trigger that is “an asynchronous event with time critical messaging needs,” as the claim additionally requires. Petition, 23; see POR, 10-23; SAMSUNG-1039, ¶¶31-33. Nor does PO dispute that the retrieval request can be configured as an automatic request or a manual request. Petition, 22-23; SAMSUNG-1004, 19-20 (“In *automatic mode*,” MM retrieval “is accomplished without any [user]

⁴ Petitioner also noted that MMS User Agent can “defer[] message delivery” and subsequently retrieve automatically or manually. Petition, 21-22; SAMSUNG-1004, 28.

interaction”; “*In manual mode* the end user is made aware of the MM notification” and “deci[des] whether to download the MM....”).

Thus, the user device can manually send the retrieval request, or the MMS User Agent can be configured to automatically send the retrieval request—which, per the ’192 specification, are separate message delivery triggers. SAMSUNG-1004, 20; SAMSUNG-1039, ¶34. For example, the ’192 specification describes multiple example triggers, including one “initiated by one or more agents” and another being a “transmission generated by... a user request.” See SAMSUNG-1001, 38:30-38, 38:50-63. Consistent with this, TS-23.140 discloses multiple triggers in the form of an automated retrieval request initiated by the MMS User Agent and a user-requested message retrieval. SAMSUNG-1039, ¶34.

B. TS-23.140’s Size Restriction Specification is a Separate Message Delivery Trigger

PO acknowledges that, when a message retrieval request includes a size restriction, the MMS Relay/Server does “not deliver the [message]” “unless” the message size meets this restriction. POR, 15; SAMSUNG-1004, 29. Yet, PO contends that the size restriction specification is not a message delivery trigger because it is part of a “valid message retrieval request... conforming to the TS-23.140’s requirements.” POR, 15-17. This argument fails. SAMSUNG-1039, ¶¶35-37.

First, there is no notion of a “valid” (or “invalid”) retrieval request in TS-23.140. SAMSUNG-1039, ¶38. There is also no “TS-23.140[] requirement[]” for the request including the size restriction. *Id.* Indeed, specifying size restriction is optional—i.e., a retrieval request may or may not include this restriction—as Dr. Brogioli confirmed during deposition. *Id.*; SAMSUNG-1044, 9:18-10:3, 12:9-13:23.

Second, PO improperly conflates the size restriction specification with a message retrieval request, despite these being separate conditions/criteria that trigger message delivery. SAMSUNG-1042, 4 (defining “trigger” as a condition that initiates an action); SAMSUNG-1001, 70:6-30 (referring to the ’192 Patent’s transmission triggers as “criteria,” “parameters,” and “conditions”); SAMSUNG-1044, 18:3-13 (referring to these transmission triggers as a “list of conditions”), 19:20-21:18; SAMSUNG-1039, ¶39. Specifically, even if a retrieval request is received, the message is not delivered unless the MMS Relay/Server **additionally** determines that the message size is within the size restriction—when the request specifies this optional condition. SAMSUNG-1003, ¶155; SAMSUNG-1039, ¶¶39-40; SAMSUNG-1004, 29.

Third, the ’192 specification confirms that message delivery can be triggered upon occurrence of multiple conditions/parameters. *See* SAMSUNG-1001, 38:50-63 (“transmission trigger is based on waiting for an amount of service usage, **and**

also including a minimum transmission rate”), 38:30-38, 70:6-16 (“determin[ing] *when to transmit based* potentially on *several parameters*, such as *one or more of the following parameters*”); POR, 5; SAMSUNG-1039, ¶41; SAMSUNG-1044, 34:16-36:7. Similarly, in TS-23.140, receipt of the retrieval request and the additional/optional condition specifying size restriction, constitute multiple message delivery triggers that together trigger message delivery. SAMSUNG-1039, ¶42; SAMSUNG-1001, 70:21-30.

C. Message Delivery When MMS User Agent Becomes Available/Reachable Constitutes Another Message Delivery Trigger

PO argues that the MMS User Agent becoming available/reachable is not a message delivery trigger and instead specifies “conditions for duration of message buffering” and “how message delivery should be attempted.” POR, 20-21. This argument fails.

First, user availability/reachability does not indicate/specify “how” message delivery is “attempted”—as PO contends. Other than unsupported expert testimony, PO offers no evidence corroborating this assertion. SAMSUNG-1039, ¶¶43-44.

Second, for message delivery triggers, it is typical for the message to be stored and for delivery to be triggered when the condition specified by the trigger(s) occur(s). SAMSUNG-1039, ¶45; SAMSUNG-1044, 26:11-27:21, 19:20-25, 21:3-18; SAMSUNG-1001, 70:8-30. Similarly, the message remains stored at the MMS

Relay/Server while the device is unreachable, and when it is determined as reachable/available over a network, message delivery is triggered. SAMSUNG-1039, ¶45; SAMSUNG-1004, §7.1.3 (Relay/Server checking for “terminal availability” and “[u]pon retrieval request,” “stor[ing] messages... *until the recipient MMS User Agent becomes reachable* (e.g., user moves back into coverage)”), Petition, 22; SAMSUNG-1044, 52:4-53:6 (confirming that user moving back into coverage refers to user’s terminal/device being available/reachable over a network).

Thus, message delivery is triggered upon receiving the retrieval request **and** upon the Relay/Server determining the device’s network reachability/availability. SAMSUNG-1039, ¶46 (citing SAMSUNG-1007, 7; SAMSUNG-1006, claim 14) (well-known for servers to trigger delivery of stored messages upon confirming the recipient device’s network reachability/availability). Thus, determining a device’s network availability/reachability is another message delivery trigger—the occurrence of which triggers message delivery. *Id.*

Third, the determination of device reachability is a message delivery trigger similar to the ’192’s description of “service usage” as a transmission/delivery trigger. The specification explains that a “service usage or service activity trigger” can be based on a “roaming event” or “an event related to another network connection to the device.” SAMSUNG-1001, 39:11-19; *see id.*, 70:1-30;

SAMSUNG-1039, ¶47. A POSITA⁵ would have understood that this includes a device becoming unavailable and then joining another network (e.g., in the case of roaming when the user may be traveling or when moving to another network). SAMSUNG-1039, ¶¶48-49; SAMSUNG-1044, 38:17-39:16, 40:5-25, 41:2-24.

Similarly, TS-23.140 contemplates storing a message at the Relay/Server while the recipient's user device does not have network access/coverage—even after the retrieval request is retrieved—and then triggering delivery when the user device “moves back into [network] coverage” (e.g., when a user connects to a different network or a roaming network). SAMSUNG-1039, ¶¶49-50.

D. Message Notification to the MMS User Agent is Another Message Delivery Trigger

PO appears to contend that the MMS Relay/Server sending a notification message (MM notification) is not a message delivery trigger. POR, 16-17. This, however, ignores that sending the MM notification initiates a message delivery sequence culminating with message delivery—and therefore, constitutes as a message delivery trigger. SAMSUNG-1039, ¶51.

When the MMS Relay/Server receives a message, it sends a MM notification to a MMS User Agent that includes a message reference for the message.

⁵ SAMSUNG-1039, ¶¶8-10 (addressing POSITA's skill level).

SAMSUNG-1004, 28. This notification is only sent when the message is ready for delivery, as illustrated by the below discussion of earliest desired time of delivery where the Relay/Server retains the notification until the desired delivery time. *See* III.A *infra*; SAMSUNG-1039, ¶¶52-54. Subsequently, the Relay/Server delivers the message when a retrieval request includes the message reference included in the MM notification. *Id.*; SAMSUNG-1004, 28-29.

The MM notification and the retrieval request operating together to trigger message delivery is similar to the '192's description of multiple parameters/conditions that operate as a sequence of triggers and that must occur before message delivery is triggered. SAMSUNG-1039, ¶55 (citing SAMSUNG-1001, 38:50-63, 70:8-30; explaining that in a system configured to deliver messages when the '192's disclosed parameters/triggers occur, one trigger/parameter could occur first (e.g., "user request") followed by the other (e.g., "certain amount of service usage")). Similarly, in TS-23.140, message notifications and retrieval requests are separate triggers, with the message notifications occurring (initiated by MMS Relay/Server) before the retrieval requests (initiated by MMS User Agent). SAMSUNG-1039, ¶¶56-58.

E. PO’s Attempt to Distinguish a Message Delivery Trigger From a Condition that Must Occur Before Message is Delivered is Refuted by the Intrinsic Record

Per PO, “[t]he Petition’s only explanation as to how any of the above scenarios (other than reception of a valid retrieval request) supposedly constitute a ‘message delivery trigger’ is” by “conflat[ing] a ‘message delivery trigger’ with a ‘condition[]’ that must be met before a message can be delivered.” POR, 21.

This argument is refuted by the intrinsic record. The ’192 specification provides multiple examples of parameters/conditions—which PO confirms are message delivery triggers—that must occur before a message is delivered. *See, e.g.*, SAMSUNG-1001, 70:8-30; POR, 5; SAMSUNG-1044, 18:3-13, 19:20-25, 21:3-18, 26:11-27:12, 28:11-29:2, 22:4-16; SAMSUNG-1039, ¶¶59-60. This is consistent with how triggers would ordinarily be understood. SAMSUNG-1039, ¶61; SAMSUNG-1042 (dictionary definition of trigger: “specifies a *condition* and an associated action. *If the condition is satisfied, the rule is triggered*”).

Moreover, Petitioner does not call “any” condition⁶ a message delivery trigger, as PO argues. Rather—and consistent with the specification and the plain and ordinary meaning of trigger—the Petition explained that message delivery is

⁶ Petitioner is not asserting that a device having a working power source alone is a message delivery trigger, as PO suggests. *See* POR, 21-22.

triggered when one or more of the above-described conditions (in addition to the receipt of a retrieval request) occur. *See* Petition, 21-22; SAMSUNG-1039, ¶62.

III. TS-23.140 RENDERS OBVIOUS CLAIM 9

A. TS-23.140’s disclosure of “earliest time of delivery” renders obvious “expiration of a periodic timer” as a message delivery trigger

As the Petition explained (Petition, 30-31):

- “TS-23.140 discloses that the originating MMS User Agent can set the MM’s desired delivery time, such that the MMS Relay/Server stores the message until the earliest desired time of delivery, before delivering the message.”
- “A POSITA would have understood or found obvious that specifying the desired delivery time triggers a periodic timer upon message receipt that expires when the desired delivery time is reached, triggering message delivery.”
- “This timer is periodic because whenever a message is received, the timer is triggered and continues for a particular period—the expiration of which triggers message delivery.”

In rebuttal, PO argues that: (1) the earliest desired time of delivery is not a message delivery trigger (2) nor does it relate to the expiration of a periodic timer. POR, 29-33. Both arguments fail.

First, a proper contextualized reading of TS-23.140 confirms that the specification of the earliest desired time of delivery is a message delivery trigger. PO incorrectly disregards this trigger presumably because message delivery does not happen immediately upon the trigger's occurrence—and yet, TS-23.140 unequivocally ties this feature to message delivery (“earliest desired time of *delivery*”). SAMSUNG-1039, ¶¶63-65.

TS-23.140 explains that a sending MMS User Agent can set the message's “earliest desired time of delivery” and MMS Relay/Server “shall retain the MM until the earliest desired time of delivery,” if this feature is supported. SAMSUNG-1004, 27-28. A POSITA would have thus recognized that the message is retained by the MMS Relay/Server and not delivered until the “earliest desired time of delivery.” SAMSUNG-1039, ¶¶66-67; SAMSUNG-1003, ¶¶196-197.

TS-23.140 expressly contemplates that the originating MMS Relay/Server can be the same as the recipient MMS Relay/Server, in which case, “the MM does not have to be routed forward” to a separate Recipient Relay/Server. SAMSUNG-1004, 28. In such instances, a POSITA would have understood that the message is retained until the earliest desired time of delivery, after which time, the MMS Relay/Server sends the MM notification to the recipient MMS User Agent, followed by the recipient MMS User Agent sending the message retrieval request. SAMSUNG-1039, ¶¶68-69; SAMSUNG-1044, 45:20-46:25, 50:20-51:16 (confirming this

understanding). Thus, a POSITA would have recognized that determining whether the earliest desired time of delivery has been met initiates a message delivery sequence culminating with message delivery—and therefore, constitutes a message delivery trigger. *See id.*; EX-2001, ¶¶78-80 (confirming that MMS Relay/Server “guarantees” that message is not delivered until the earliest desired time of delivery by retaining the message until that time and only then transmitting the message notification to the recipient); SAMSUNG-1039, ¶70; SAMSUNG-1044, 47:1-24, 50:20-51:17.⁷

Second, PO also incorrectly argues that the Petition’s “earliest desired time of delivery” description does not demonstrate the “expiration of a periodic timer” limitation. POR, 32-33, 9-10. This rebuttal rests on a mischaracterization of the Petition. SAMSUNG-1039, ¶71.

Contrary to PO’s assertion, the Petition did not contend that the “periodic” aspect of the claim is satisfied merely because a timer for a certain period is initiated. *See* Petition, 30-31; SAMSUNG-1039, ¶72. Rather, the Petition explained that the identified “timer is periodic” because it refers to a timer that recurs “whenever a

⁷ PO’s arguments regarding message forwarding (POR, 30-31) are inapplicable because the Petition’s theory was not based on message forwarding. Petition, 30-31.

message is received” and the “expiration of [this timer] triggers message delivery.”
Id.

Specifically, a POSITA would have recognized or found obvious that the MMS Relay/Server has *a timer that is triggered each time it receives a message with an earliest desired time of delivery*. SAMSUNG-1039, ¶73. The recurrence of such trigger is a periodic event, rendering this timer (on the Relay/Server) a “periodic” timer. *Id.*; see §I *supra* (explaining a “periodic” event can recur irregularly, such as “whenever a new message” specifying the earliest desired time of delivery is received); Petition, 30-31.

Further, the triggered timer runs for a certain period—i.e., until the desired earliest time of delivery—the expiration of which results in the message delivery sequence being initiated. SAMSUNG-1039, ¶74; SAMSUNG-1044, 50:20-51:17, 47:1-24. As discussed above, since the delivery sequence would not start until this (periodic) timer reaches the earliest desired time of delivery, the expiration of the timer constitutes a message delivery trigger. Petition, 30-31; SAMSUNG-1039, ¶74; SAMSUNG-1003, ¶¶196-197.

B. “Periodic polling” as taught by TS-23.140 renders obvious “expiration of a periodic timer” trigger recited in claim 9.

PO’s rebuttal does not dispute that TS-23.140’s description of periodic polling teaches “expiration of a periodic timer,” per claim 9. See POR, 23-29, 7 (“an

excellent example of something that occurs *periodically* is ... ‘periodic polling’” (emphasis in original)).

PO’s rebuttal instead attempts to refute the Petition’s analysis by contending that “a POSITA would understand that it is the MMS Relay/Server’s role”—and not the “MMS User Agent’s role”—“to interact with external messaging systems.” POR, 24. This argument lacks merit because claim 9 is agnostic as to where the claimed trigger occurs. *See* SAMSUNG-1001, 70:5-30 (teaching that the trigger can happen at any of the server or the device); SAMSUNG-1044, 29:12-30:10, 31:14-32:6. Therefore, regardless of which entity performs the periodic polling, such polling triggers message delivery upon the expiration of the period (for periodic polling). SAMSUNG-1039, ¶¶75-79.

Further, as Dr. Traynor explained, periodic polling is performed by MMS Relay/Server and results in messages being delivered to the MMS User Agent from one or more servers. *See* SAMSUNG-1003, ¶¶198-199 (“periodic polling is a message delivery trigger because, *in response to receipt of such polling, messages*

from the respective servers would be provided/delivered to the MMS User Agent via the MMS Relay/Server”); SAMSUNG-1039, ¶¶77⁸.

IV. HOUGHTON-MUNSON RENDERS OBVIOUS INDEPENDENT CLAIMS 1 AND 15

A. PO Disregards the Record Evidence to Advance its Incorrect Narrative that Messages Received by the Push Server Would Not Include the Information Recited in the Claims

As the Petition and Dr. Traynor’s supporting declaration explain, Houghton-Munson renders obvious that the message sent from Houghton’s application server (claimed network element) includes message content for and identification of an application on a mobile device (i.e., respective one of the authorized system components). Petition, 67-71; SAMSUNG-1003, ¶¶319-342.

⁸ Per PO, the periodic polling theory also fails because “Dr. Traynor provides no evidence that a message received from an external server using a non-MMS-specific protocol would meet the requirements of claim 1.” POR, 29. This argument lacks merit. Regardless of the type of connection between the Relay/Server and External Server, the External Server sends multimedia messages (MM)—of the type described with reference to claim 1—to the MMS User Agent via the Relay/Server. SAMSUNG-1004, 14; SAMSUNG-1039, ¶¶80.

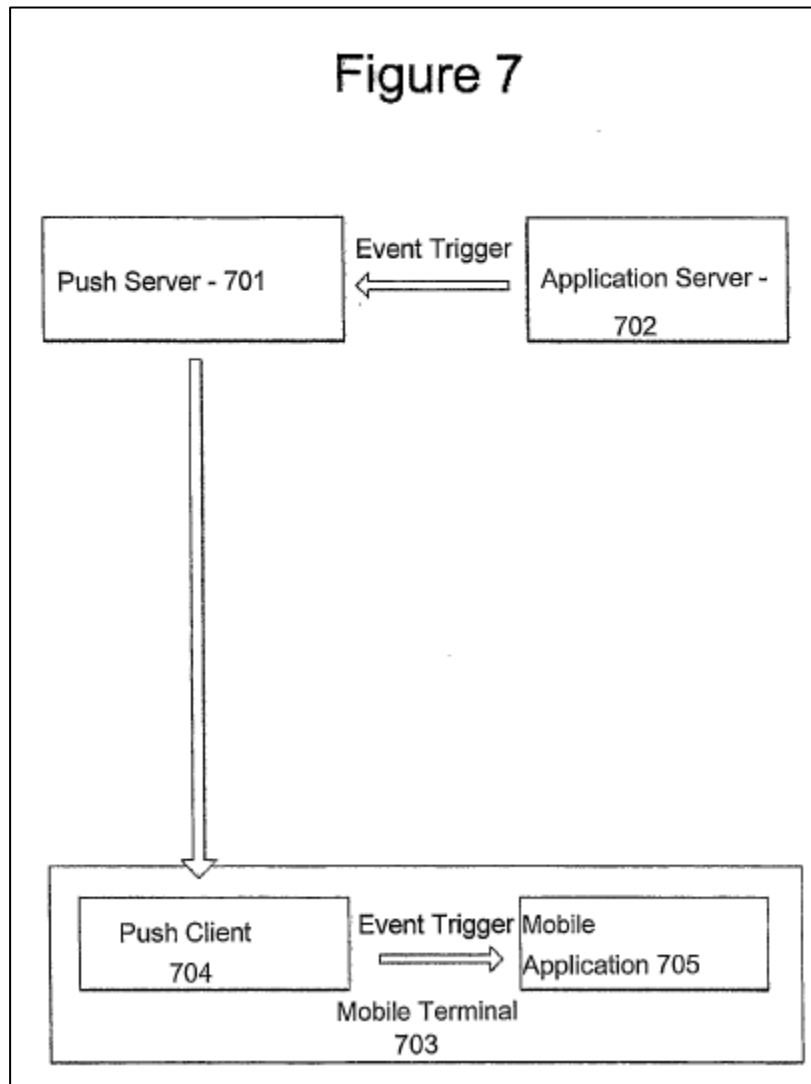
In rebuttal, PO argues that the Petition shows obviousness of messages “sent by Houghton’s push server including an application identifier,” but “provides no reasoned analysis” regarding “why the messages received by Houghton’s push server” from the application server “would include an application identifier.” POR, 34-41.

These assertions lack merit and are premised on an incomplete reading of the record evidence. *See* POR, 35-39. When considered in the proper context, the record demonstrates that it would be obvious for messages received from Houghton’s application servers (i.e., the claimed network elements) to include (1) data for an application on a mobile device, and (2) an identification of the application—as explained below. SAMSUNG-1039, ¶¶81-83.

1. Dr. Traynor Demonstrated That Houghton’s Application Server Sends Messages Including Message Content for Applications on a Mobile Device

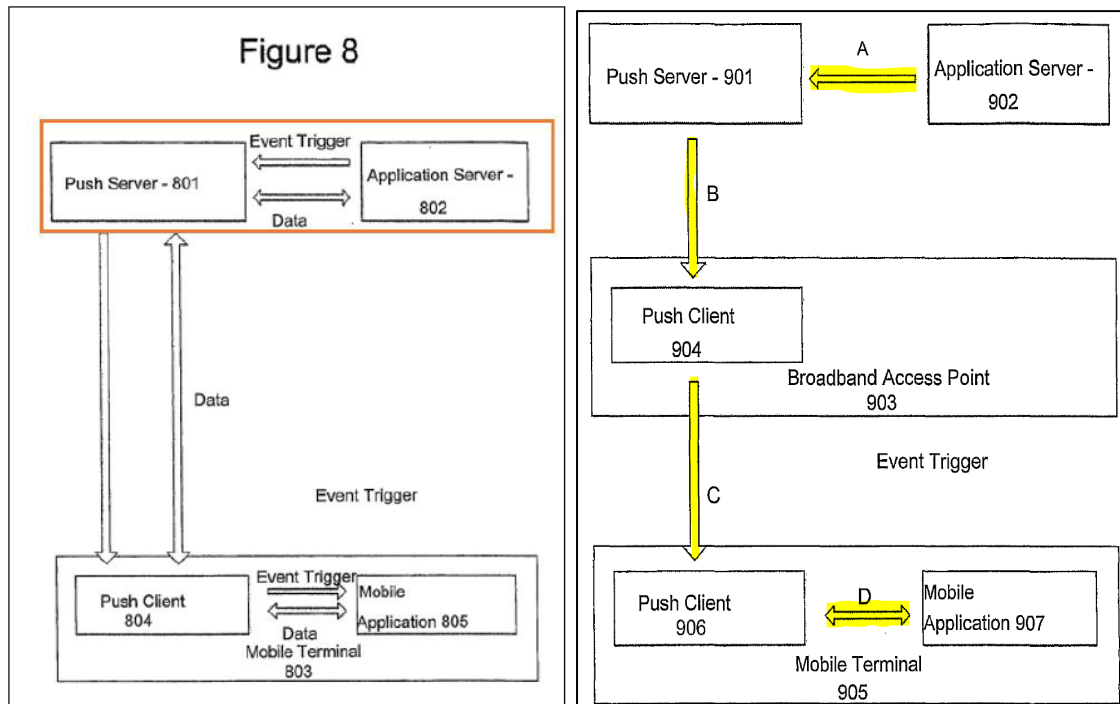
As Dr. Traynor explained, in Houghton-Munson, the messages from the application servers (i.e., the received network element messages) are application command messages. *See* Petition, 67; SAMSUNG-1003, ¶¶319-329. Specifically, the combination leverages Houghton’s teachings of FIG. 7 (below), where a push server 701 is triggered by an event trigger “from an application server 702” to “push *an application command message* to the push client 704 and thereby initiate a mobile terminal client trigger event *in a mobile application 705 from a plurality of*

such applications... on the terminal 705.” Petition, 66-67, 69; SAMSUNG-1007, 21-22, FIG. 7; SAMSUNG-1003, ¶¶320-321.



As shown, the application server sends an “event trigger” message to the push server. *See id.*; SAMSUNG-1039, ¶¶84-85. An “event trigger” message, per Houghton, is a message that includes data for “launch[ing] or command[ing] a mobile application.” SAMSUNG-1007, 9; SAMSUNG-1003, ¶¶320-322, 340; Petition, 71. Also, as shown above, after the data transmission between the push

server and the push client, the push client transmits this “event trigger” message to mobile application 705/805. SAMSUNG-1039, ¶¶85-86; SAMSUNG-1003, ¶¶91, 322, 333; SAMSUNG-1007, FIG 8, 23 (depicting a command push procedure with data connections (labelled “Data”) between application server and mobile application); Petition, 50.



Further, in Figure 9 (above, right), Houghton shows transmission of an “event trigger,” and in the associated description, states that “push server 901 is triggered by a trigger event of which the application server 902 is aware *to send push message* to the mobile terminal 905, and *procedure steps A, B, C are traversed thereby pushing application launch commands, lazy application updates, and lazy application data updates through push clients ... to mobile application 907.*”

SAMSUNG-1007, 24; SAMSUNG-1003, ¶340. Because this application command message is a “push message” that is pushed to the mobile terminal and it traverses “steps A, B, C” that begin at the application server, these push messages are pushed from the application server. SAMSUNG-1039, ¶87; SAMSUNG-1003, ¶¶320-328.

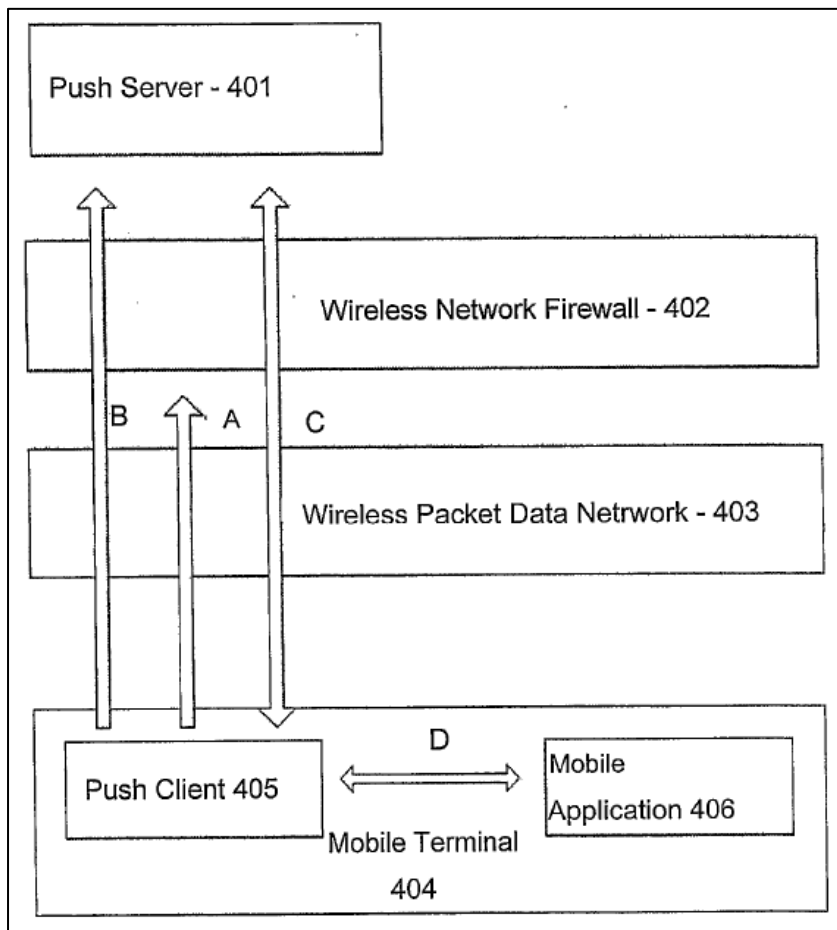
Thus, as Dr. Traynor explains based on the above descriptions, the message sent by the application server (claimed network element) and received by the push server (claimed message link server), includes “message content including data for ... a respective one of the authorized software components.” SAMSUNG-1003, ¶¶339-341. That’s because the event trigger message sent by the application server is an application command message that includes content and data (e.g., application launch commands, lazy application updates, and lazy application data) for a particular mobile application on Houghton’s mobile terminal. *See id.*; SAMSUNG-1007, 9, 24; SAMSUNG-1039, ¶88.

2. Dr. Traynor Demonstrated Obviousness of Messages Sent by Houghton’s Application Server Including an Identification of the Application on a Mobile Device

As Dr. Traynor explained, it would have been obvious to include an application identifier in the push message sent by Houghton’s application server for delivery to a mobile application. SAMSUNG-1003, ¶¶330-341; SAMSUNG-1039, ¶89.

In the context of an application server sending a push message to a mobile application via a push server, Dr. Traynor explained that it was well-known—in view of Lee and TS-23.140—for push messages from the application servers to include an application identifier specifying/identifying this application. SAMSUNG-1003, ¶¶333-338. For example, Lee discloses a push message sent by a push application server—which is delivered to a destination application via a push server—includes an “app-ID” specifying the destination application. SAMSUNG-1006, ¶¶13, 22; SAMSUNG-1039, ¶90. Similarly, TS-23.140 teaches that each destination application to which a push message is sent by a VAS (which is an example of an application server) includes an application identifier of that application. SAMSUNG-1004, 54-56; SAMSUNG-1003, ¶336; SAMSUNG-1039, ¶90.

In this vein, Dr. Traynor explained that Houghton’s push message delivered by the push server includes “[a]dditional binary or text information specifying which mobile application 406 from a plurality of such applications...” SAMSUNG-1006, 21; SAMSUNG-1003, ¶¶333-334; SAMSUNG-1039, ¶91. This description is provided in view of Houghton’s Figure 4 (below).



The above figure depicts the push server communicating with the mobile terminal, but does not depict any additional devices/server connected to the push server. *See id.*; SAMSUNG-1039, ¶92. However, Figure 4’s description explains that “the push message from the push server” is triggered by a “trigger event” such as “from another device or system.” SAMSUNG-1007, 21. Houghton subsequently provides Figures 7-9 and their associated description, which provide additional embodiments of the “command push procedure” and describe (as explained in §IV.A.1) (1) an application server communicating with an application on the mobile

terminal via the push server and (2) the push server being “triggered by” a trigger event (which Houghton refers to and shows as an “event trigger” message) to send a “*push message*” *from “application server* to the mobile terminal 905” “through push clients” to the particular “*mobile application.*” SAMSUNG-1039, ¶¶92-96; SAMSUNG-1007, 21-24; SAMSUNG-1003, ¶¶331-341.

Moreover, Houghton discloses an environment—which PO does not dispute—where the push server is in communication with multiple application servers and multiple terminals with their respective applications, and where a particular application server is sending messages to a particular application from among multiple applications. *See* SAMSUNG-1007, 21-22, FIG. 7; Petition, 67-71. Thus, a POSITA would have recognized or found obvious that the application server, which is sending messages to a particular application, would include the identifier for the destination application so that the push server knows the appropriate application to direct the message. SAMSUNG-1039, ¶¶96-101; SAMSUNG-1006, ¶23; SAMSUNG-1003, ¶¶331-343. Indeed, the application server is better equipped, relative to the push server, to provide the application identifier because the application server originates the message and knows the intended application to which the message is directed. SAMSUNG-1039, ¶¶100-103.

Given (1) that Houghton teaches that the push server interfaces and relays messages from multiple application servers to multiple applications, (2) that

application commands are sent as push messages to a particular mobile application from an application server (as explained in §IV.A.1 *supra*) and the push message includes information identifying the destination application, and (3) that it was conventional (as corroborated by Lee and TS-23.140) for an application server sending a push message to include the application identifier for the intended application, Dr. Traynor explained that a POSITA would have understood or found obvious for Houghton's similar push messaging environment to be implemented so that the push message from the application server includes an application identifier that specifies/identifies the destination application. SAMSUNG-1003, ¶¶319-341; SAMSUNG-1039, ¶¶81-104.

B. PO's Reliance on the Institution Decision in IPR2024-00003 Disregards the Different Theories/Evidence Presented in This Proceeding

The POR relies on the institution decision in IPR2024-00003 for U.S. Patent 9,198,117 ("117 Patent") to argue that "the Petition's Ground 5 theory should be rejected for similar reasons" because "the Petition's deficiency here (the improper focus on the content of messages from the push server to the push client rather than of messages from the application server to the push server) is precisely the same deficiency the Board recognized in denying institution in IPR2024-00003." POR, 41-42.

This assessment is flawed because it ignores critical distinctions in the different records of the two proceedings. In IPR2024-0003, the petition applied a combination of Houghton and Kalibjian to the '117 Patent's independent claims, and relied upon Houghton's teachings for the limitation of "receiv[ing]" from a "network application server[]" a request "indicating ... one of a plurality of applications." SAMSUNG-1043, 5-50. The petition, there, stated that Houghton's "command messages initiate mobile terminal client trigger event in a mobile application" and that each mobile application "has a fixed IP port number," which was mapped to the claim feature of "each such request indicating ... one of a plurality of applications." SAMSUNG-1043, 21-22. Thus, the '117 Petition mapped Houghton's disclosure of IP port numbers and IP addresses to the claimed feature of "indicati[on] [of] one of a plurality of applications." *See id.* In the ensuing institution decision, the Board concluded that the petition had "failed to make a sufficient showing as to" the above-described limitation, given that the Petition had allegedly not shown that the IP port numbers/addresses would be included in the message from the application server. *See* EX-2007, 17-20.

In contrast, the present record provides different art mappings and different evidence demonstrating that a POSITA would have understood or found obvious that the push messages from the application server includes an application identifier for a destination application. As a first point of distinction, the present petition

mapped the claimed “identification of the authorized software component” to an application identifier (unlike in the ’117 Patent’s petition where the information indicating an application was mapped to IP port numbers/addresses). SAMSUNG-1003, ¶330; Petition, 69.

Additionally, the present petition leveraged evidence—not relied upon in the ’117 Petition—explaining:

(1) the well-known use of an application identifier for a destination mobile application being included in the push message sent from an application server to that application (as corroborated by Lee and TS-23.140). Petition, 70; SAMSUNG-1003, ¶336.

(2) Push messages, in the context of Houghton’s Figure 4 and its associated “command push” procedure, being sent from the push server and including application command messages and “information specifying which mobile application 406 from a plurality of such applications.” SAMSUNG-1003, ¶¶332-333; Petition, 70.

(3) The application command push messages being “received ... from another device or system,” such as an application server as depicted in Figures 7-9, that sends these commands in an event trigger message—i.e., a “message[] to launch or command a mobile application”—provided to the push server for delivery to the mobile application. SAMSUNG-1003, ¶¶320, 331-332, 339-

340; Petition, 71; SAMSUNG-1007, 9, 21, 22, 24 (confirming that event trigger message is a “push message” sent to “the mobile terminal” and is initiated by the application server) ; *see id.*, 22 (“trigger mechanism may be... an IP-triggered application launch and data transfer”); *see* §IV.A *supra*.

Based on the above evidence/analysis which was not considered/raised in IPR2024-0003, and based on Dr. Traynor’s testimony in his original and supplemental declarations, a POSITA would have understood or found obvious that the push message sent by the application server—which includes application command messages for a destination mobile application—would include an application identifier identifying the destination mobile application to which the event trigger/application command is directed. SAMSUNG-1003, ¶¶319-342.

V. HOUGHTON-MUNSON RENDERS OBVIOUS CLAIM 9

A. PO Fails to Address the Petition’s Theory Based on Houghton

For this claim, PO contends that the Petition only advances a theory based on Munson and does not rely on Houghton. POR, 43. This is incorrect and leaves out critical text expressly mapping the claimed feature of “expiration of a periodic timer” to Houghton’s disclosure. Specifically, per the Petition, “Houghton contemplates multiple message delivery triggers (SAMSUNG-1007, 21) *and discloses a periodic message (sent upon “expiration of a timer”)* so that devices in the communication

path ... ‘do not time expire the connection.’” Petition, 82-83 (underline emphasis on portion omitted in POR).

The POR failed to address the Petition’s express mapping based on Houghton alone, and is now foreclosed from addressing this theory in its sur-reply. *See In re NuVasive*, 842 F.3d 1376, 1380-81 (Fed. Cir. 2016) (arguments waived on issues not raised in POR); Paper 8, 9 (“arguments not raised in the response may be deemed forfeited”).

B. Pushing content based on a “schedule of time or event” additionally satisfies the “expiration of a periodic timer” feature of claim 9

Per the Petition, “Houghton-Munson leverages Munson’s teachings that ‘content can be pushed according to a schedule of time or event’ (‘message delivery trigger’)” with Munson providing an example where a ‘group push’ is performed ‘during off-peak hours’”, e.g., for system maintenance. Petition, 82-83 (explaining obviousness of use of such periodic timers).

PO offers two reasons for why the combination allegedly does not use the “expiration of a periodic timer” as a “message delivery trigger.” POR, 43-45. Both arguments fail. SAMSUNG-1039, ¶¶105-106.

First, PO argues, incorrectly, that pushing content according to a “schedule or event” does not involve a timer. POR, 43-44. A “schedule of time or event” teaches or renders obvious use of a timer that would expire once the scheduled time

or event arrives. SAMSUNG-1039, ¶107 (explaining that, in PO's provided example, delivery triggered by an event scheduled to recur every year would teach/suggest a periodic timer that expires at the end of the year and thereby triggers delivery); *see* SAMSUNG-1040 (defining "schedule" as "[t]o allocate time periods and/or resources.").

Second, PO incorrectly argues that Munson does not "suggest[] that 'system maintenance' [in Munson] occurs on any pre-established schedule that would be understood to be periodic," nor that push updates would operate pursuant to a "periodic timer." POR, 44-45.

A POSITA would have found obvious that a scheduled time or event such as system maintenance is indeed a recurring event that happens on a schedule and recurs, for example, "during off-peak hours" (per Munson). SAMSUNG-1039, ¶108. A POSITA would have recognized that maintenance events are often performed to recur (e.g., to ensure that a system remains updated) and such maintenance/updates can be done at particular times, e.g., during off-peak hours. *Id.*; SAMSUNG-1040; SAMSUNG-1045, ¶62; SAMSUNG-1001, 63:5-14. Thus, the above not only teaches/renders obvious a timer, but also one that recurs periodically (i.e., periodic timer), the expiration of which triggers message delivery. SAMSUNG-1003, ¶¶388-391; SAMSUNG-1039, ¶108.

VI. CONCLUSION

The Challenged Claims are unpatentable.

Respectfully submitted,

Date: December 18, 2024

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CERTIFICATION UNDER 37 CFR § 42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petitioner Reply to Patent Owner Response totals 5,594 words, which is less than the 5,600 allowed under 37 CFR § 42.24(c)(1).

Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR § 42.6(e), the undersigned certifies that on December 18, 2024, a complete and entire copy of this Petitioner's Reply to Patent Owner's Response and accompanying exhibits were provided by email, to the Patent Owner by serving the correspondence addresses of record as follows:

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