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

W&WSENS DEVICES INC.,	)	
	)	
Plaintiff,	)	Case No. 2:24-cv-00854-JRG
	)	
v.	)	**CONFIDENTIAL – ATTORNEYS' EYES ONLY**
	)	
SAMSUNG ELECTRONICS CO., LTD and SAMSUNG ELECTRONICS AMERICA, INC.,	)	
	)	
Defendants.	)	

PLAINTIFF W&WSENS DEVICES INC.'S
SUPPLEMENTAL OBJECTIONS AND RESPONSES TO
DEFENDANTS' FIRST SET OF INTERROGATORIES (NOS. 1, 3, 4, AND 5)

Pursuant to Fed. R. Civ. P. Rules 26 and 33, Plaintiff W&Wsens Devices Inc. ("W&Wsens," "W&W," or "Plaintiff"), provides Second Supplemental Objections and Responses to Defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc., (together, "Samsung" or "Defendants") First Set of Interrogatories. W&Wsens makes these objections and responses herein (collectively "Responses") based solely on its current knowledge, understanding, and belief as to the facts and information reasonably available to it as of the date of the Responses.

Additional discovery and investigation may lead to additions to, changes in, or modifications of these Reponses. The Responses, therefore, are given without prejudice to W&Wsens' right to supplement these Responses pursuant to Fed. R. Civ. P. 26(e), or to provide subsequent discovered information and to introduce such subsequently discovered information at the time of any trial or proceeding in this action.

GENERAL OBJECTIONS
AND OBJECTIONS TO DEFINITIONS AND INSTRUCTIONS

W&Wsens incorporates its General Objections and Objections to Instructions set forth in its Responses to Samsung's First Set of Interrogatories, served on March 20, 2025, and First Supplemental Responses to Samsung's First Set of Interrogatories, served on April 3, 2025.

W&Wsens objects to Defendants' Definitions of the terms "Asserted Patents" and "Asserted Claims," and objects to each Interrogatory that incorporates any of these terms, to the extent they do not include Claims 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, and 16 of U.S. Patent No. 12,243,948 (the "'948 Patent").

RESPONSES TO INTERROGATORIES

INTERROGATORY NO. 1

For each Asserted Claim, identify all facts and circumstances of any conception, reduction to practice, and diligence, and the earliest effective filing date of the purported invention as claimed, including without limitation: identifying the earliest date by which W&W contends the purported invention as claimed was conceived; identifying the earliest date by which W&W contends the purported invention as claimed was reduced to practice; identifying all activities that W&W contends shows diligence between the conception and reduction to practice the purported invention as claimed; identifying all documents concerning such conception, reduction to practice, or diligence; identifying all Persons involved and their role with the conception, reduction to practice, or diligence of the purported invention as claimed; and identifying all Persons with knowledge of such facts.

RESPONSE TO INTERROGATORY NO. 1

W&Wsens incorporates its General Objections and Objections to Definitions and Instructions by reference. W&Wsens objects to this Interrogatory to the extent it seeks

information protected from disclosure by the attorney-client privilege, the work product doctrine, the common interest doctrine, or any other applicable law, privilege, doctrine, or immunity. W&Wsens will not disclose any privileged information. W&Wsens objects to this Interrogatory as overbroad and unduly burdensome, not reasonably calculated to lead to the discovery of admissible evidence, and neither relevant nor proportional to the needs of this case. W&Wsens objects to this Interrogatory as being compound and having multiple subparts and as seeking discovery into multiple issues including (1) conception, (2) diligence, (3) reduction to practice, and (4) earliest effective filing date, each of which represents a distinct interrogatory. W&Wsens objects to this Interrogatory as seeking information that is covered by confidential agreements with third-parties or protective orders of other litigations or any other proceedings.

Subject to and without waiving the foregoing General Objections and any specific objections contained herein, W&Wsens responds as follows:

The following table sets forth the conception date, reduction to practice date, and earliest effective filing date for the asserted claims of the Asserted Patents:

Patent	Asserted Claims	Conception Date	Reduction to Practice Date	Earliest Effective Filing Date
U.S. 9,525,084	1, 2, 3, 5, 7, 8, 11, 12, 13, 14, 15, 17, 18, 19, 21	November 2014	No later than November 18, 2014	November 18, 2014
U.S. 10,446,700	1, 3, 7, 9, 10, 16, 20, 24, 26, 28, 29, 30, 32	April 2013	May 22, 2013	May 22, 2013
U.S. 10,468,543	1, 3, 7, 9, 10, 16, 20, 24, 26, 28, 29, 30, 32	April 2013	May 22, 2013	May 22, 2013
U.S. 11,621,360	1, 3, 5, 6, 8, 9	April 2013	May 22, 2013	May 22, 2013
U.S. 12,087,871	1, 2, 3, 4, 6, 7, 8, 10, 12, 14, 15, 16, 17, 18	April 2013	May 22, 2013	May 22, 2013

Shih-Yuan Wang and Shih-Ping Wang conceived of the inventions of the asserted claims of the '700, '543, '360 and '871 Patents in or around April 2013. At that time, Shih-Yuan Wang

and Shih-Ping Wang were working on solutions to improve the absorption efficiency of thin silicon, such as for use in optical interconnect and CMOS-type applications. They conceived of the solution of using microstructures in thin silicon to increase absorption sensitivity during this time period and then worked diligently with their patent counsel to prepare a patent application. They filed Provisional Application U.S. 61/826,446 shortly thereafter on May 22, 2013, which was a constructive reduction to practice of their inventions.

In or around June 2014, Shih-Yuan Wang and Shih-Ping Wang engaged Dr. M. Saif Islam, a professor at the University of California, Davis, to fabricate proof of concept photodetectors to test their inventions and collaborate on design improvement. Dr. Islam conducted a series of proof of concept fabrication runs, verifying the efficacy of the use of microstructures and fabricating and testing the resulting photodetectors. Along with Shih-Yuan Wang and Shih-Ping Wang, Dr. Islam contributed to the conception of claims of the '700 and '543 Patents.

The following individuals have information regarding the subject matter of this Interrogatory: Shih-Yuan Wang, Shih-Ping Wang, and M. Saif Islam.

Subject to its objections and pursuant to Federal Rule of Civil Procedure 33(d), W&Wsens further refers Defendants to the following range of Bates-labeled documents: WWSENS000001-000127, WWSENS000128-001264, WWSENS001265-001464, WWSENS001465-002367, WWSENS002368-002567, WWSENS002568-003205, WWSENS003206-003284, WWSENS003285-003800, WWSENS003801-003880, WWSENS003881-004534, WWSENS004569-004601, WWSENS007498-007747.

W&Wsens' investigation of this matter is ongoing, and its response to this Interrogatory will be supplemented as additional information becomes known to it.

FIRST SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 1

W&Wsens incorporates its General Objections and Objections to Definitions and Instructions by reference. W&Wsens objects to this Interrogatory to the extent it seeks information protected from disclosure by the attorney-client privilege, the work product doctrine, the common interest doctrine, or any other applicable law, privilege, doctrine, or immunity. W&Wsens will not disclose any privileged information. W&Wsens objects to this Interrogatory as overbroad and unduly burdensome, not reasonably calculated to lead to the discovery of admissible evidence, and neither relevant nor proportional to the needs of this case. W&Wsens objects to this Interrogatory as being compound and having multiple subparts and as seeking discovery into multiple issues including (1) conception, (2) diligence, (3) reduction to practice, and (4) earliest effective filing date, each of which represents a distinct interrogatory. W&Wsens objects to this Interrogatory as seeking information that is covered by confidential agreements with third-parties or protective orders of other litigations or any other proceedings.

Subject to and without waiving the foregoing General Objections and any specific objections contained herein, W&Wsens responds as follows:

The following table sets forth the conception date, reduction to practice date, and earliest effective filing date for the asserted claims of the Asserted Patents:

Patent	Asserted Claims	Conception Date	Reduction to Practice Date	Earliest Effective Filing Date
U.S. 9,525,084	1, 2, 3, 5, 7, 8, 11, 12, 13, 14, 15, 17, 18, 19, 21	November 2014	November 18, 2014 (constructive)	November 18, 2014
U.S. 10,446,700	1, 3, 7, 9, 10, 16, 20, 24, 26, 28, 29, 30, 32	April 2013	May 22, 2013 (constructive)	May 22, 2013
U.S. 10,468,543	1, 3, 7, 9, 10, 16, 20, 24, 26, 28, 29, 30, 32	April 2013	May 22, 2013 (constructive)	May 22, 2013

U.S. 11,621,360	1, 3, 5, 6, 8, 9	April 2013	May 22, 2013 (constructive)	May 22, 2013
U.S. 12,087,871	1, 2, 3, 4, 6, 7, 8, 10, 12, 14, 15, 16, 17, 18	April 2013	May 22, 2013 (constructive)	May 22, 2013

Shih-Yuan Wang and Shih-Ping Wang conceived of the inventions of the asserted claims of the '700, '543, '360 and '871 Patents in or around April 2013. At that time, Shih-Yuan Wang and Shih-Ping Wang were working on solutions to improve the absorption efficiency of thin silicon, such as for use in optical interconnect and CMOS-type applications. They conceived of the solution of using microstructures in thin silicon to increase absorption sensitivity during this time period and then worked diligently with their patent counsel to prepare a patent application. They filed Provisional Application U.S. 61/826,446 shortly thereafter on May 22, 2013, which was a constructive reduction to practice of their inventions.

In or around June 2014, Shih-Yuan Wang and Shih-Ping Wang engaged Dr. M. Saif Islam, a professor at the University of California, Davis, to fabricate proof of concept photodetectors to test their inventions and collaborate on design improvement. Dr. Islam conducted a series of proof of concept fabrication runs, verifying the efficacy of the use of microstructures and fabricating and testing the resulting photodetectors. Along with Shih-Yuan Wang and Shih-Ping Wang, Dr. Islam contributed to the conception of claims of the '700 and '543 Patents.

The following individuals have information regarding the subject matter of this Interrogatory: Shih-Yuan Wang, Shih-Ping Wang, and M. Saif Islam.

Subject to its objections and pursuant to Federal Rule of Civil Procedure 33(d), W&Wsens further refers Defendants to the following range of Bates-labeled documents: WWSENS000001-000127, WWSENS000128-001264, WWSENS001265-001464,

WWSENS001465-002367, WWSENS002368-002567, WWSENS002568-003205, WWSENS003206-003284, WWSENS003285-003800, WWSENS003801-003880, WWSENS003881-004534, WWSENS004569-004601, WWSENS007498-007747.

W&Wsens' investigation of this matter is ongoing, and its response to this Interrogatory will be supplemented as additional information becomes known to it.

SECOND SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 1

In addition to W&Wsens' previously stated general and specific objections, which W&Wsens incorporates herein by reference, W&Wsens supplements its response as follows:

The following table sets forth the conception date, reduction to practice date, and earliest effective filing date for the asserted claims of the Asserted Patents:

Patent	Asserted Claims	Conception Date of Asserted Claims	Reduction to Practice Date of Asserted Claims	Earliest Effective Filing Date of Asserted Claims
U.S. 9,525,084	1, 2, 3, 5, 7, 8, 11, 12, 13, 14, 15, 17, 18, 19, 21	November 2014	November 18, 2014 (constructive)	November 18, 2014
U.S. 10,446,700	1, 3, 7, 9, 10, 16, 20, 24, 26, 28, 29, 30, 32	April 2013	May 22, 2013 (constructive)	May 22, 2013
U.S. 10,468,543	1, 3, 7, 9, 10, 16, 20, 24, 26, 28, 29, 30, 32	April 2013	May 22, 2013 (constructive)	May 22, 2013
U.S. 11,621,360	1, 3, 5, 6, 8, 9	April 2013	May 22, 2013 (constructive)	May 22, 2013
U.S. 12,087,871	1, 2, 3, 4, 6, 7, 8, 10, 12, 14, 15, 16, 17, 18	April 2013	May 22, 2013 (constructive)	May 22, 2013
U.S. 12,243,948	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16	April 2013	May 22, 2013 (constructive)	May 22, 2013

As previously described, Shih-Yuan Wang and Shih-Ping Wang conceived of the inventions of the asserted claims of the '700, '543, '360, '871, and '948 Patents in or around

April 2013. At that time, Shih-Yuan Wang and Shih-Ping Wang were working on solutions to improve the absorption efficiency of thin silicon, for use in high-speed optical interconnect and subsequently CMOS image sensor applications. They conceived of the solution of using microstructure holes in thin silicon to increase absorption sensitivity. During this time period they worked diligently with their patent counsel to prepare a patent application. They filed Provisional Application U.S. 61/826,446 shortly thereafter on May 22, 2013, which was a constructive reduction to practice of their inventions.

In or around January 2014, Shih-Yuan Wang and Shih-Ping Wang engaged Dr. M. Saif Islam, who was a professor at the University of California, Davis, as a paid consultant to collaborate on design improvement and to fabricate proof-of-concept photodetectors to test their inventions. In addition, in the following 24 months, Shih-Yuan Wang and Shih-Ping Wang paid U.C. Davis $636,000 in six separate payments for Dr. Islam's collaboration. In collaboration with Shih-Yuan Wang and Shih-Ping Wang, Dr. Islam contributed to the conception of the use of inverted-pyramid shaped holes, as is recited in unasserted dependent Claim 13 of the '700 Patent and unasserted dependent Claim 13 of the '543 Patent.

In collaboration with Shih-Yuan Wang and Shih-Ping Wang, Dr. Islam conducted a series of proof-of-concept fabrication runs starting in around June 2014, when Shih-Yuan Wang and Shih-Ping Wang made the first payment to U.C. Davis, and continuing through 2017, verifying the efficacy of the use of microstructures holes and fabricating and testing the resulting photodetectors. The proof-of-concept devices Dr. Islam fabricated consist of a thin silicon layer on insulator wafer, with N-type doping, an intrinsic region, and P-type doping with microstructure holes etched into the thin silicon. The photodetectors had N and P ohmic contacts and a mesa structure, with coplanar transmission lines for high-speed electrical signal probing.

The proof-of-concept devices are stored at W&Wsens' office and at Dr. Islam's laboratory at U.C. Davis. The results of these tests were published in the Nature Photonics journal in April 2017.

The following individuals have information regarding the subject matter of this Interrogatory: Shih-Yuan Wang, Shih-Ping Wang, and Dr. Islam.

The individuals identified in the following table served as advisors or consultants to W&Wsens on the subject matter identified below. They were not involved in the conception, reduction to practice, or diligence of the asserted claims. W&Wsens incorporates by reference its Responses and Objections to Samsung's Venue Interrogatory No. 1.

Name	Subject Matter of Consulting Services
Ekaterina Ponizovskaya	Advisor to W&Wsens regarding simulations of W&Wsens' inventions.
Siraj El Ahmadi	Former consultant to W&Wsens regarding market development.
Aly F. Elrefaie	Former consultant to W&Wsens regarding data center applications.
Soroush Ghandisparsi	Former consultant to W&Wsens regarding data center applications.
Xiaoguang Liu	Former consultant to W&Wsens regarding market development.
Hasina H. Mamtaz	Consultant to W&Wsens regarding mask design and graphics.
Ming Wu	Former consultant to W&Wsens regarding fabrication of proof-of-concept photodetectors.
Toshishinge Yamada	Consultant to W&Wsens regarding semiconductor theory.

Subject to its objections and pursuant to Federal Rule of Civil Procedure 33(d), W&Wsens further refers Defendants to the following range of Bates-labeled documents: WWSENS 000001-000127, WWSENS 000128-001264, WWSENS 001265-001464, WWSENS

001465-002367, WWSENS 002368-002567, WWSENS 002568-003205, WWSENS 003206-003284, WWSENS 003285-003800, WWSENS 003801-003880, WWSENS 003881-004534, WWSENS 004569-004601, WWSENS 007498-007747, WWSENS 156547-156627, WWSENS 156628-157499, WWSENS 157500-157523.

W&Wsens' investigation of this matter is ongoing, and its response to this Interrogatory will be supplemented as additional information becomes known to it.

INTERROGATORY NO. 3

Identify and describe with specificity all attempts, whether successful or not, by or on behalf of W&W, W&W investor(s), or any previous owner of any of the Asserted Patents, to practice, license, sell, enforce, capitalize on or otherwise exploit any of the Asserted Patents or any Related Patents and Applications, including, but not limited to a description of all such events, any monetary offers, and any licenses to any of the Asserted Patents and any Related Patents and Applications.

RESPONSE TO INTERROGATORY NO. 3

W&Wsens incorporates its General Objections and Objections to Definitions and Instructions by reference. W&Wsens objects to this Interrogatory to the extent it seeks information protected from disclosure by the attorney-client privilege, the work product doctrine, the common interest doctrine, or any other applicable law, privilege, doctrine, or immunity. W&Wsens will not disclose any privileged information. W&Wsens objects to this Interrogatory as overbroad and unduly burdensome, not reasonably calculated to lead to the discovery of admissible evidence, and neither relevant nor proportional to the needs of this case. W&Wsens further objects to this Interrogatory to the extent it purports to impose any requirement or discovery obligation greater than or different from those imposed by the Federal Rules of Civil

- Written Opinion of International Search Report for PCT/US2020/051733 dated Dec. 17, 2020.

In the list above, an asterisk indicates references identified by the examiner during prosecution of the patent. W&Wsens uncovered the remaining references during preparation of the Asserted Patents, prosecution of related patent applications, and from international search reports. An identification of the specific circumstances and timing for when each of the numerous references was first identified is unduly burdensome and not relevant to any claim or defense.

Subject to its objections and pursuant to Federal Rule of Civil Procedure 33(d), W&Wsens further refers Defendants to the following range of Bates-labeled documents: WWSENS 156547-156627, WWSENS 156628-157499.

W&Wsens' investigation of this matter is ongoing, and its response to this Interrogatory will be supplemented as additional information becomes known to it.

Dated: October 1, 2025

By: */s/ Aaron M. Frankel*

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CERTIFICATE OF SERVICE

The undersigned hereby certify that, on October 1, 2025, a true and correct copy of the foregoing **PLAINTIFF W&WSENS DEVICES INC.'S SUPPLEMENTAL OBJECTIONS AND RESPONSES TO DEFENDANTS' FIRST SET OF INTERROGATORIES (NOS. 1, 3, 4, AND 5)** was served via electronic mail upon counsel of record for Defendants as indicated:

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