UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner

v.

CM HK LIMITED,
Patent Owner.

Case IPR2025-01071
Patent No. 10,852,687

PETITIONER'S BRIEF

LIST OF EXHIBITS

Ex. No.	Description	Previously Submitted
Ex. 1001	U.S. Patent No. 11,698,687 to Liou et al. ("the 687 patent")	X
Ex. 1002	Declaration of Majid Sarrafzadeh, Ph.D.	X
Ex. 1003	Curriculum Vitae of Majid Sarrafzadeh, Ph.D.	X
Ex. 1004	Prosecution History of U.S. Patent No. 11,698,687	X
Ex. 1005	WO 2009/156499 to Bassompiere et al.	X
Ex. 1006	Certified Translation of WO 2009/156499 to Bassompiere et al. ("Bassompiere")	X
Ex. 1007	A. Kim and M. Golnaraghi, "A quaternion-based orientation estimation algorithm using an inertial measurement unit," *PLANS 2004. Position Location and Navigation Symposium (IEEE Cat. No. 04CH37556)*, 268-272, 2004 ("Kim")	X
Ex. 1008	**RESERVED**	
Ex. 1009	U.S. Patent No. 8,441,438	X
Ex. 1010	U.S. Patent No. 8,552,978	X
Ex. 1011	IPR2018-01258, Paper 86 (Final Written Decision)	X
Ex. 1012	IPR2019-00143, Paper 87 (Final Written Decision)	X
Ex. 1013	IPR2018-01257, Paper 87 (Final Written Decision)	X
Ex. 1014	Provisional Application No. 61/292,558	X
Ex. 1015	3/7/2018 Deposition Trans. of Dr. LaViola in *CyWee Group Ltd. v. Samsung Elecs. Co., Ltd.*, 17-cv-00140 (E.D. Tx.)	X

Ex. 1016	5/22/2019 Deposition Trans. Of Dr. Joseph LaViola in IPR-2018-01257 and IPR-2018-01258	X
Ex. 1017	1/7/2025 Plaintiff's P.R. 3-1 & 3-2 Disclosures for *Samsung Electronics Co, Ltd. et al v. CM HK, Ltd.* (2:24-cv-00880 E.D. Tx.)	X
Ex. 1018	*Sotera* Stipulation Email From E. Brann to M. Shore on July 19, 2025	X
Ex. 1019	*CM HK, Ltd., v. Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc.*, No. 2:24-cv-00880, Dkt. 28	X
Ex. 1020	*CM HK, Ltd., v. Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc.*, No. 2:24-cv-00880 ("the Texas Litigation"), Dkt. 55	X
Ex. 1021	7/9/2018 Claim Construction Opinion and Order in *CyWee Group Ltd. v. Samsung Elecs. Co., Ltd.*, 17-cv-00140 (E.D. Tx.)	

Petitioner Samsung submits this brief pursuant to the Board's Order mailed November 14, 2025 (Paper 13) requesting briefing on Patent Owner's allegation that Samsung has taken "inconsistent positions on the construction of the term 'predicted axial accelerations.'" (Paper 13 at 2-3, citing IPR2025-01023 Preliminary Response at 21-24.) As explained below, Samsung has never alleged that the term "predicted axial accelerations" is indefinite. Instead, Samsung has consistently applied the plain and ordinary meaning for the term. Patent Owner's contrary assertion is ***yet another*** blatant misstatement regarding the record. (*See* Paper No. 10 at 4 n.1 (misstating the facts regarding Samsung's *Sotera* stipulation).)

ARGUMENT

First, it is undisputed that Samsung's position on the term "predicted axial accelerations" in the co-pending litigation in the Northern District of California is ***consistent*** with its position in the instant IPR. Specifically, in the co-pending litigation, Samsung has taken the position that the term should be given its "plain and ordinary meaning." (Ex. 2007 at 3.) Samsung's expert in the IPR likewise applied the "plain and ordinary" meaning for all claim terms, including the "predicted axial accelerations" term. (Ex. 1002 at ¶39.)

Second, even in the prior (and now dismissed with prejudice) litigation in the Eastern District of Texas involving invalidated patents related to the instant '687 patent, Samsung agreed with the Plaintiff in that case (CyWee) that the term should

be given its plain and ordinary meaning. For example, as evident from the Texas Court's Claim Construction Opinion and Order excerpted below, Samsung and CyWee agreed that a limitation reciting "predicted axial accelerations" should be given its plain and ordinary meaning. (Ex. 1021 at 5 (emphasis added).) If Samsung's position in that case was that the term "predicted axial accelerations" is indefinite, as Patent Owner represented to the Board (Prelim. Resp. at 21-22), Samsung could not have agreed that a limitation including "predicted axial accelerations" is definite and should be given its plain and ordinary meaning.

The parties agree to the following constructions, which the Court hereby adopts.

Joint Cl. Constr. & Prehearing Statement [Dkt. # 57] at 1–2.

Claim Term	Agreed Construction
calculating predicted axial accelerations Ax', Ay', Az' based on the measured angular velocities ωx, ωy, ωz of the current state of the six-axis motion sensor module without using any derivatives of the measured angular velocities ωx, ωy, ωz ('438 Patent, cl.14, 19)	plain and ordinary

(Ex. 1021 at 5 (excerpted and annotated).)

Third, Samsung's statements from the *CyWee* case referenced by Patent Owner in its Preliminary Response do not constitute an allegation that the term "predicted axial accelerations" is indefinite or does not have a plain and ordinary meaning. When read in context, those statements merely point out that because claim 1 of the patent at issue there, *i.e.*, U.S. Patent No. 8,441,438 ("the '438 patent")

(Ex. 1009), did not specify the type of "axial acceleration," limitations comparing "axial accelerations" (or "predicted axial accelerations") and "angular velocities" were indefinite for claiming a ***mathematical impossibility***. (Ex. 2025 at 4-14.[1]) For example, Samsung argued that the limitation "utilizing a comparison to compare the first signal set with the second signal set" is indefinite because the "first signal set" includes "angular velocities" whereas the "second signal set" includes "axial accelerations." (*Id*. at 5.) Given that "axial accelerations" could be one of three types (linear, centrifugal, and gravitational), "a POSA would not know which acceleration (linear, centrifugal, or gravitational) is being compared with angular velocities." (*Id*. at 6.) This matters because "[i]f an 'axial acceleration' is interpreted to include either linear or gravitational acceleration components, it is ***mathematically impossible*** to compare an axial acceleration with an angular velocity," which renders the claim indefinite. (*Id*. at 7-8 (emphasis added).)

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[1] The two limitations alleged to be indefinite were: "utilizing a comparison to compare the first signal set with the second signal set" and "comparing the second quaternion in relation to the measured angular velocities ωx, ωy, ωz of the current state at current time T with the measured axial accelerations Ax, Ay, Az and the predicted axial Ax', Ay', Az' also at current time T."

Applying the same logic, Samsung explained that another limitation comparing "angular velocities" to "predicted axial accelerations" was also indefinite. (*Id*. at 12-14 ("a POSA would have understood that it is mathematically impossible to compare angular velocities with . . . predicted axial accelerations").)

Contrary to Patent Owner's allegations, Samsung never argued that the term "predicted axial accelerations" was indefinite in the *CyWee* case. (*See* Ex. 2025.) Indeed, the Texas Court resolved indefiniteness for three claim limitations none of which are "predicted axial accelerations." (*See* Ex. 1021 at 4-17.) Patent Owner has not referred the Board to any statement from the Texas claim construction proceedings to the contrary.[2] Samsung's position, then, and now, was simply that the term "axial acceleration" (whether predicted or measured) has a meaning well-understood by those of ordinary skill, *i.e.*, the term ordinarily encompasses three types of acceleration.

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[2] Samsung's position that the "axial accelerations" can be one of three types is not a suggestion that the scope of the term cannot be ascertained with reasonable certainty. To the contrary, Samsung expressly noted that a POSA would recognize that '"axial acceleration' could be any of [linear, centrifugal, or gravitation] accelerations or some combination from among the three." (Ex. 2025 at 6.)

Fourth, Samsung's statements that the '438 patent's failure to specify the type of "axial accelerations" (predicted or measured) renders the comparison limitations in the '438 patent indefinite do not impact the instant IPR because unlike the '438 patent, the comparison limitations in the instant IPR compare "accelerations" with "accelerations" (as opposed to comparing "angular velocities" with "accelerations"). For example, both independent claims 1 and 14 of the '687 patent at issue in the IPR recite "comparing the predicted axial accelerations with the measured axial accelerations . . . to obtain a first comparison result." (*See* Ex. 1001.) Therefore, regardless of the type of acceleration, two accelerations are compared ensuring that the limitation recites a mathematical possibility unlike claim 1 of the '438 patent. Thus, unlike the petitioner in *Tesla, Inc. v. Intellectual Ventures II LLC*, IPR2025-00340, Paper 18 at 3–4 (Director Nov. 5, 2025) (informative), Samsung did not argue indefiniteness for the claim limitation at the issue in the district court. Even accepting Patent Owner's argument to the contrary, Samsung, unlike *Tesla*, showed that a POSA would understand that the asserted art satisfies the relevant claim limitation for purposes of the IPR. *See Tesla*, Paper 18 at 3–4.

For the above reasons, institution of trial is respectfully requested.

Respectfully submitted,

Dated: November 21, 2025

By: /Naveen Modi/
Naveen Modi (Reg. No. 46,224)
Chetan Bansal (Reg. No. 81,590)
Robert Laurenzi (Reg. No. 45,557)

Counsel for Petitioner

CERTIFICATE OF SERVICE

I certify that I caused to be served on the counsel identified below a true and correct copy of the foregoing Petitioner's Brief by electronic means on November 21, 2025:

Ginger G. Turner (ginger@gingineerllc.com)
Christopher L. Evans (chris@offorevans.com)
chiji@offorevans.com
mshore@shorefirm.com
zdellaporta@shorefirm.com
andrew@offorevans.com
cjohnson@shorefirm.com

By: / Naveen Modi /
Naveen Modi (Reg. No. 46,224)
Counsel for Petitioner