

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

ADVANCED CODING TECHNOLOGIES LLC,	§	Case No. 2:24-cv-00353
	§	
Plaintiff,	§	<u>JURY TRIAL DEMANDED</u>
	§	
v.	§	
	§	
GOOGLE LLC,	§	
	§	
Defendant.	§	
	§	

**PLAINTIFF ADVANCED CODING TECHNOLOGIES LLC'S
OBJECTIONS AND RESPONSES TO
GOOGLE'S FIRST SET OF INTERROGATORIES TO ACT (NOS. 1-16)**

PLEASE TAKE NOTICE that, pursuant to Rules 26 and 33 of the Federal Rules of Civil Procedure, Plaintiff Advanced Coding Technologies LLC (“ACT” or “Plaintiff”) hereby supplements its responses to Defendant Google LLC’s (“Google” or “Defendant”) First Set of Interrogatories to ACT (Nos. 1-16) in writing, under oath, and in accordance with the following definitions and instructions, within thirty (30) days of the date of service thereof.

These Interrogatories are continuing in nature and require supplementation in accordance with the Federal Rules of Civil Procedure as follows: These responses are made solely for the purposes of this action, and are made without waiving, or intending to waive, the right at any time to revise, correct, modify, supplement, or clarify any response provided herein or the right to object on any proper grounds to the use of these responses, for any purpose in whole or in part, in any subsequent proceedings or any other action. The right to raise any applicable objections at any time is expressly reserved. A response to any Interrogatory herein should not be taken as an admission or acceptance of the existence of any facts set forth or assumed by such Interrogatory,

or that such response constitutes admissible evidence. The responses herein reflect only the present state of ACT's investigation and the present state of discovery. Except as otherwise indicated, an objection and/or response to a specific Interrogatory does not imply that facts responsive to the Interrogatory exist.

GENERAL OBJECTIONS

1. ACT objects to these Definitions, Instructions, and Interrogatories as overly broad, unduly burdensome, not proportional to the needs of this case, and seeking to impose burdens beyond those required by the Federal Rules of Civil Procedure, the Local Civil and Patent Rules of the Eastern District of Texas, and the Orders governing this action. ACT will respond to Defendant's Interrogatories consistent with the Federal Rules of Civil Procedure, the Local Rules of this Court, and/or Orders of this Court.

2. ACT objects to the Definitions, Instructions, and Interrogatories as seeking the production of electronically stored information and source code in a manner inconsistent with the Protective Order (Dkt. 34).

3. ACT objects to the Definitions of "document," "communication," "thing," "person," "third party," "third party," "concern," "concerning," "evidence," "evidencing," "relating to," "relate to," "relates to," "related to," "referring or relating to," "referring to," "regarding," "refer or relate to," and "describe in complete detail" as (i) overly broad; (ii) unduly burdensome; (iii) not proportional to the needs of this case; (iv) not relevant to any party's claims or defenses; (v) seeking information that is not within ACT's possession, custody, or control; and (vi) imposing burdens beyond the requirements of the Federal Rules of Civil Procedure, the Local Civil and Patent Rules of the Eastern District of Texas, and the Orders governing this action.

4. ACT objects to the definition of “Advanced Coding Technologies LLC,” “ACT,” “Plaintiff,” “you,” “your,” “yourself,” and “Predecessor-in-Interest,” as overly burdensome, not proportional to the needs of the case, and not relevant to any party’s claims or defenses because they include persons and entities outside of ACT. Accordingly, ACT provides answers to these Interrogatories on behalf of ACT only. ACT further objects to these definitions to extent that they call for information from current and former parents, subsidiaries, affiliates, predecessors, successors, employees, managers, officers, directors, partners, agents, representatives, and/or attorneys, that are not owned or controlled by ACT or that is not in the possession of ACT.

5. ACT objects to the definitions of “Related Patents or Patent Applications” as overly burdensome and seeking information regarding patents and applications that are not proportional to the needs of the case and not relevant to any party’s claims or defenses.

6. ACT objects to the definitions of “Accused Product” and “Covered Product” as overly broad, unduly burdensome, and seeking information not within ACT’s possession, custody, or control.

7. ACT objects to the definitions of “or,” “and,” “each,” “every,” and “including” as unduly burdensome, vague, and ambiguous.

8. ACT objects to these definitions to extent they call for the production of information protected from disclosure by the attorney-client privilege, the work-product doctrine, or any other applicable privilege or immunity insofar as the definition purports to include attorneys.

9. ACT objects to Defendant’s Interrogatories to the extent they seek information not relevant to a claim or a defense of this litigation or proportional to the needs of the case, considering the importance of the issues at stake in the action, the amount in controversy, the

parties' relative access to relevant information, the parties' resources, the importance of the discovery in resolving the issues, and whether the burden or expense of the proposed discovery outweighs its likely benefit. By responding to any Interrogatory or identifying or producing documents or materials in response thereto, ACT is not acknowledging or conceding the relevance of any such material and reserves the right to object to the introduction of the evidence on relevancy or any other grounds.

10. ACT objects to Defendant's Interrogatories to the extent they seek material protected by, or which may only be answered by, reliance upon any privileged or work-product information, including mental impressions, conclusions, opinions, or legal theories of ACT's counsel, experts or consultants developed with or in anticipation of litigation. To the extent reasonably possible, ACT will attempt to interpret the Interrogatories as not seeking privileged information. Inadvertent reference to privileged information by ACT shall not constitute a waiver of any applicable privilege.

11. ACT objects to Defendant's Interrogatories to the extent that they are duplicative of the Local Civil and Patent Rules of the Eastern District of Texas.

12. ACT objects to Defendant's Interrogatories as seeking information that is less burdensome and/or more appropriately obtained through other discovery means.

13. ACT objects to Defendant's Interrogatories to the extent that they require premature disclosure of expert testimony, evidence, argument, contentions, or any other disclosure inconsistent with the Federal Rules of Civil Procedure, the Local Civil and Patent Rules of the Eastern District of Texas, or the Orders governing this action.

14. ACT objects to the Interrogatories to the extent that they seek legal conclusions. Where an Interrogatory includes words and concepts indicative of a legal conclusion, ACT does not represent that such conclusions apply by responding to the Interrogatory.

15. ACT objects to Defendant's Interrogatories to the extent that they improperly seek to shift Defendant's burden of proof to ACT.

16. ACT objects to Defendant's Interrogatories to the extent they call for information that is confidential, proprietary, and/or trade secrets of a third party. ACT cannot divulge confidential, proprietary, and/or trade secret information of a third party to the extent ACT is under any obligation to maintain such third party information in confidence and to not disclose it, unless and until the third party grants permission to do so.

17. ACT objects to Defendant's Interrogatories as premature to the extent that discovery is not complete in this case. Accordingly, additional facts and witnesses may be discovered as discovery progresses.

18. ACT objects to each Interrogatory as premature to the extent it calls for contentions, expert discovery, or claim construction information in advance of the dates set out in any applicable scheduling orders of the Court, including the Second Amended Docket Control Order (Dkt. 39), and/or the Local Rules for the Eastern District of Texas. ACT further objects to each Interrogatory to the extent it calls for expert discovery or other information that is premature at this stage of the litigation.

19. ACT objects to Defendant's Interrogatory to the extent it calls for expert discovery or other information that is premature at this stage of the litigation.

20. ACT objects to Defendant's Interrogatories to the extent they comprise multiple discrete subparts in contravention of the Federal Rules of Civil Procedure.

21. ACT reserves the right to use at trial and in any other proceeding in this action any such additional documents, witnesses, facts, and evidence that may have been omitted from these responses for one of the foregoing reasons or otherwise, and without obligating ACT to do so, ACT reserves the right to supplement or amend these responses in the future as may be appropriate.

22. ACT's responses shall not constitute admissions that any particular documents exist, are relevant, material or are admissible in evidence.

SPECIFIC OBJECTIONS AND RESPONSES

INTERROGATORY NO. 1

Separately for each Asserted Claim and, for each Asserted Claim, each Accused Product asserted against that Asserted Claim, describe in detail all the legal and factual bases for Your allegation, as set forth in Your Patent Rule 3-1 Infringement Contentions, that each Accused Product infringes each Asserted Claim, including without limitation an identification of and the legal and factual bases for whether You are alleging that Google directly infringes each Asserted Claim, that Google actively induced others to directly infringe each Asserted Claim, and/or that Google contributed to the direct infringement of each Asserted Claim, that Google's infringement of each Asserted Claim was willful, and that the Asserted Claims are entitled to the priority dates asserted, including a description of the conception, reduction to practice, design, and development of each for each Asserted Claim, including an identification of all Documents and Things supporting Your allegations and all Persons having knowledge about such allegations

RESPONSE TO INTERROGATORY NO. 1

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, and seeking information not proportional to the needs of the case, particularly to the extent it requests a response with respect to "for each Asserted Claim," "describe in detail all the legal and factual bases for Your allegation ... that each Accused Product infringes each Asserted Claim," "identification of and the legal and factual bases for whether You are alleging that Google directly infringes each Asserted Claim, that Google actively induced others to directly infringe each Asserted Claim, and/or that Google contributed to the direct infringement of each Asserted Claim, that Google's infringement of each Asserted Claim was willful," "the Asserted Claims are entitled to the priority dates asserted, including a description of the conception, reduction to practice, design, and development of each for each Asserted Claim," and "identification of all Documents and Things supporting Your allegations and all Persons having knowledge about such allegations." ACT objects to this Interrogatory to the extent it calls for a legal conclusion. ACT objects to this Interrogatory to the extent that it seeks information protected by the attorney-client privilege, work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT further objects to this

Interrogatory as containing multiple subparts, each of which counts towards Defendant's total number of Interrogatories. ACT objects to this Interrogatory as seeking information that is properly the subject of expert reports before the deadline for such disclosures, and without the benefit of claim construction.

Subject to and without waiving its General and Specific Objections to this Interrogatory, ACT responds as follows:

ACT incorporates by reference, as if fully set forth herein, its Disclosure of Asserted Claims and Infringement Contentions, served October 3, 2024, and any supplementations thereto.

The inventions of the '025 Patent were conceived at least as of April 17, 2006. Named inventors of the '025 Patent, including at least Satoru Sakazume, diligently reduced the inventions to practice, at least through April 17, 2006, when Japan Patent Application No. 2006-112995 was filed. Diligent reduction to practice continued after April 17, 2006.

The inventions of the '303 Patent were conceived at least as of March 31, 2014. Named inventors of the '303 Patent, including at least Hideki Takehara and Motoharu Ueda, diligently reduced the inventions to practice, at least through March 31, 2014, when Japan Patent Application No. 2014-071975 was filed. Diligent reduction to practice continued after March 31, 2014.

The inventions of the '995 Patent were conceived at least as of May 30, 2008. Named inventors of the '995 Patent, including at least Satoru Sakazume, diligently reduced the inventions to practice, at least through May 30, 2008, when Japan Patent Application No. P2008-142433 was filed. Diligent reduction to practice continued after May 30, 2008.

The inventions of the '448 Patent were conceived at least as of May 30, 2008. Named inventors of the '448 Patent, including at least Satoru Sakazume, diligently reduced the inventions

to practice, at least through May 30, 2008, when Japan Patent Application No. P2008-142433 was filed. Diligent reduction to practice continued after May 30, 2008.

The inventions of the '101 Patent were conceived at least as of March 2, 2007. Named inventors of the '101 Patent, including at least Satoru Sekiguchi, Yoshio Sonoda, Isao Nakamura, Masamichi Furukawa, Yoshihisa Mashita, Tomoaki Yoshida, and Masahito Watanabe, diligently reduced the inventions to practice, at least through March 2, 2007, when PCT/JP2007/054603 was filed. Diligent reduction to practice continued after March 2, 2007.

The inventions of the '891 Patent were conceived at least as of March 31, 2004. Named inventors of the '891 Patent, including at least Satoru Sakazume, diligently reduced the inventions to practice, at least through March 31, 2004, when Japan Patent Application No. 2004-108399 was filed. Diligent reduction to practice continued after March 31, 2004.

Defendant has been on actual notice of the '025 and '303 Patents and Defendant's infringement thereof from related prior litigations accusing products with similar AV1 functionalities involving direct competitors of Defendant.

Defendant has been on actual notice of the '995 Patent and the '448 Patent and Defendant's infringement thereof at least as of June 3, 2013, when it was cited during prosecution of U.S. Patent No. 8,635,357, entitled "Dynamic selection of parameter sets for transcoding media data," assigned to Google LLC. Specifically, during prosecution, the Examiner cited to U.S. Patent Publication No. 2011/0075734 A1, which is the published patent application number of the '448 Patent, of which the '995 patent application is a divisional patent application.

Defendant has been on actual notice of the '101 and '891 Patents, at least as of the filing date of this First Amended Complaint on August 2, 2024.

Discovery in this case is ongoing and ACT continues to investigate this matter. ACT will supplement this response to provide any additional responsive, non-privileged information to the extent such information exists, can be ascertained after a reasonable investigation in accordance with the Federal Rules of Civil Procedure and any applicable Court order, and is in the possession, custody, or control of ACT. ACT reserves the right to supplement its response to this Interrogatory, including identifying additional documents pursuant to Fed. R. Civ. P. 33(d).

INTERROGATORY NO. 2

Separately for each Asserted Claim, describe whether You assert the claim is valid, and for each claim You assert is valid: (a) describe in detail each and every basis for Your contention of validity; (b) with respect to each prior art reference, or combination of prior art references, identified by Google as a basis for invalidity under 35 U.S.C. § 102 or § 103, describe in detail each and every basis on which You contest such assertion of invalidity, including but not limited to which, if any, limitation of each claim You assert is not disclosed by that prior art reference or combination of prior art references, and describe in detail the complete basis for any disagreement You have with the analysis set forth by Google; (c) with respect to 35 U.S.C. § 101, describe in detail each and every basis for Your contention that the requirements of 35 U.S.C. § 101 are satisfied, including describe in detail the complete basis for any disagreement You have with § 101 analysis set forth by Google; (d) with respect to 35 U.S.C. § 112, describe in detail each and every basis for Your contention that the requirements of 35 U.S.C. § 112 are satisfied, including describe in detail the complete basis for any disagreement You have with § 112 analysis set forth by Google; (e) identify all Documents and Things supporting Your assertions of validity; and (f) identify all Persons having knowledge about the factual bases for Your assertions.

RESPONSE TO INTERROGATORY NO. 2

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, seeking information not proportional to the needs of the case, particularly to the extent it requests, “for each claim You assert is valid,” “describe in detail each and every basis for Your contention of validity,” “describe in detail each and every basis on which You contest such assertion of invalidity,” “limitation of each claim You assert is not disclosed by that prior art reference or combination of prior art references,” “describe in detail the complete basis for any disagreement You have with the analysis set forth by Google,” “describe in detail each and every basis for Your contention,”

“describe in detail the complete basis for any disagreement You have with § 101 analysis set forth by Google,” “identify all Documents and Things supporting Your assertions of validity,” and “identify all Persons having knowledge about the factual bases for Your assertions.” ACT further objects to this Interrogatory to the extent it calls for a legal conclusion. ACT objects to this Interrogatory to the extent that it seeks information protected by the attorney-client privilege, work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT further objects to this Interrogatory as containing multiple subparts, each of which counts towards Defendant’s total number of Interrogatories. ACT objects to this Interrogatory as seeking information that is properly the subject of expert reports before the deadline for such disclosures, and without the benefit of claim construction. ACT objects to this Interrogatory to the extent that it improperly seeks to shift Defendant’s burden of proof to ACT.

Subject to and without waiving its General and Specific Objections to this Interrogatory, ACT responds as follows:

ACT incorporates by reference its forthcoming expert reports on validity and infringement, which will be served in accordance with the Second Amended Docket Control Order (Dkt. 39).

ACT incorporates by reference its response to Interrogatory No. 5 with respect to secondary considerations of non-obviousness.

The Asserted Claims are also valid because the specifications of the Patents-in-Suit include sufficient written description of the inventions claimed in the Patents-in-Suit, and the manner and process of making and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use any of the allegedly claimed inventions, 35 U.S.C. § 112, ¶ 1. Moreover, the patent applications that issued as the Patents-in-Suit contain a written description of the purported invention

sufficiently clear and complete to enable one of ordinary skill in the art to which the purported invention pertains to make and use the invention as claimed without undue experimentation. *Id.* The Asserted Claims are also valid under 35 U.S.C. § 112, ¶ 1 because their full scope is enabled by the specifications of the relevant Patents-in-Suit. *Id.* The Asserted Claims are also valid under 35 U.S.C. § 112, ¶ 1 because there is sufficient written description of the invention to demonstrate that purported inventor(s) of the Asserted Claims possessed the inventions set forth in the Asserted Claims. 35 U.S.C. § 112, ¶ 1. The Asserted Claims are also valid because, under the constructions and infringement theories set forth by ACT, the claims particularly point out and distinctly claim the subject matter which the applicant(s) regards as the invention as required by 35 U.S.C. § 112, ¶ 2.

All of the Asserted Claims of the Patents-in-Suit are also valid because they are not directed to abstract ideas but rather to improvements in tangible computer technology. The technical benefits of these claims and patents also do not flow from any abstract idea in conjunction with well-understood structures or generic instructions to apply mathematical formulas. To the extent that the Asserted Claims of the Patents-in-Suit incorporate any abstract idea (they do not), the Asserted Claims are flush with additional features that embody an inventive concept and represent a significant departure from routine, well-known, and conventional features, ordinary mental processes, or other information-based or mathematical algorithm-based categories of abstract ideas.

Discovery in this case is ongoing and ACT continues to investigate this matter, particularly because Defendant has not yet served any invalidity contentions. ACT will supplement this response to provide any additional responsive, non-privileged information to the extent such information exists, can be ascertained after a reasonable investigation in accordance with the

Federal Rules of Civil Procedure and any applicable Court order, and is in the possession, custody, or control of ACT. ACT reserves the right to supplement its response to this Interrogatory, including identifying additional documents pursuant to Fed. R. Civ. P. 33(d).

INTERROGATORY NO. 3

For each of the Asserted Patents, identify all Prior Art, including all patents, articles or other publications, systems, all documents reflecting prior sale or offer for sale, prior public use, prior knowledge, prior inventorship, or derivation, that became known at any time to ACT, the named inventor(s), or former assignee(s) of the Asserted Patent, or other persons involved in the prosecution of the Asserted Patent, including the dates and circumstances of how such Prior Art become known and an identification of persons most knowledgeable about how and when each identified item of Prior Art became known.

RESPONSE TO INTERROGATORY NO. 3

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, seeking information not proportional to the needs of the case, particularly to the extent it requests, but is not limited to, “identify all Prior Art, including all patents, articles or other publications,” and “all documents reflecting prior sale or offer for sale, prior public use, prior knowledge, prior inventorship, or derivation, that became known at any time to ACT.” ACT further objects to this Interrogatory to the extent it calls for a legal conclusion. ACT objects to this Interrogatory to the extent that it seeks information protected by the attorney-client privilege, work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT further objects to this Interrogatory as containing multiple subparts, each of which counts towards Defendant’s total number of Interrogatories. ACT objects to this Interrogatory as seeking information that is already in Defendant’s possession, custody, or control, or is otherwise readily obtainable to Defendants with lesser or equal burden to ACT.

Subject to and without waiving its General and Specific Objections to this Interrogatory, ACT responds as follows:

ACT incorporates by reference the specifications and File Histories of the Asserted Patents, and prior art cited therein, produced as ACT-GOOGLE00000001-00001673; ACT-GOOGLE00005773-00007891.

ACT incorporates by reference Defendant's upcoming Invalidity Contentions.

ACT incorporates by reference Invalidity Contentions served in prior litigations involving the '025, '303, and '995 Patents, produced as ADVANCED_CODING_0016436-ADVANCED_CODING_0040009.

ACT incorporates by reference all prior art identified in IPR2024-00327, challenging U.S. Patent No. 9,986,303, filed January 5, 2024; IPR2024-00372, challenging U.S. Patent No. 10,218,995, filed January 8, 2024; and IPR2024-00374, challenging U.S. Patent No. 8,090,025, filed January 8, 2024.

Discovery in this case is ongoing and ACT continues to investigate this matter. ACT will supplement this response to provide any additional responsive, non-privileged information to the extent such information exists, can be ascertained after a reasonable investigation in accordance with the Federal Rules of Civil Procedure and any applicable Court order, and is in the possession, custody, or control of ACT. ACT reserves the right to supplement its response to this Interrogatory, including identifying additional documents pursuant to Fed. R. Civ. P. 33(d).

INTERROGATORY NO. 4

For each Asserted Claim, describe in detail, the date and circumstances of each disclosure, use, public use, sale, or offer for sale of the claimed invention before the filing date of the respective patent application immediately preceding issuance of the Asserted Patent, including without limitation the first written description of the claimed invention, the first offer for sale of the claimed invention, the first sale of the claimed invention, the first public disclosure of the claimed invention, the first use of the claimed invention, the first public use of the claimed invention, the first disclosure to another of the claimed invention, the identity of each person with knowledge of any of the foregoing, and the identity of each document or thing that relates to any of the foregoing.

RESPONSE TO INTERROGATORY NO. 4

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, seeking information not proportional to the needs of the case, particularly to the extent it requests, but is not limited to, “[f]or each Asserted Claim,” “the identity of each person with knowledge of any of the foregoing,” and “the identity of each document or thing that relates to any of the foregoing.” ACT objects to this Interrogatory to the extent that it seeks information protected by the attorney-client privilege, work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT further objects to this Interrogatory as containing multiple subparts, each of which counts towards Defendant’s total number of Interrogatories.

Subject to and without waiving its General and Specific Objections to this Interrogatory, ACT responds as follows:

Subject to the foregoing objections, under Rule 33(d) of the Federal Rules of Civil Procedure, ACT identifies the following documents, produced as ACT-GOOGLE00000001-00001673; ACT-GOOGLE00005773-00007891; ADVANCED_CODING_0000683-ADVANCED_CODING_0012302.

Discovery in this case is ongoing and ACT continues to investigate this matter. ACT will supplement this response to provide any additional responsive, non-privileged information to the extent such information exists, can be ascertained after a reasonable investigation in accordance with the Federal Rules of Civil Procedure and any applicable Court order, and is in the possession, custody, or control of ACT. ACT reserves the right to supplement its response to this Interrogatory, including identifying additional documents pursuant to Fed. R. Civ. P. 33(d).

INTERROGATORY NO. 5

Identify in detail the complete factual basis for any secondary considerations of nonobviousness You contend exist with respect to the Asserted Claims, and identify each Document that supports Your contention and each Person having knowledge of those facts

RESPONSE TO INTERROGATORY NO. 5

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, seeking information not proportional to the needs of the case, particularly to the extent it states, “any secondary considerations of nonobviousness,” “each Document that supports Your contention,” and “each Person having knowledge of those facts.” ACT objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, attorney work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT objects to this Interrogatory to the extent it seeks information that may be protected from disclosure by Protective Orders, Non-Disclosure Agreements, or is otherwise in the possession of a third party to which a duty of confidentiality is owed. ACT objects to this Interrogatory as containing multiple subparts, each of which counts toward Defendant’s total number of Interrogatories. ACT further objects to this Interrogatory to the extent it calls for a legal conclusion. ACT objects to this Interrogatory to the extent that it improperly seeks to shift Defendant’s burden of proof to ACT. ACT objects to this Interrogatory to the extent it seeks information that may be protected from disclosure by Protective Orders, Non-Disclosure Agreements, or is otherwise in the possession of a third party to which a duty of confidentiality is owed.

Subject to and without waiving its General and Specific Objections to this Interrogatory, ACT responds as follows:

ACT directs Defendants to the publicly-available file histories for the Patents-in-Suit, produced as ACT-GOOGLE00000001-00001673; ACT-GOOGLE00005773-00007891.

ACT incorporates by reference, as if fully set forth herein, its forthcoming expert reports on infringement and/or validity, which will be served in accordance with the Second Amended Docket Control Order (Dkt. 39).

The Patents-in-Suit are valid and non-obvious in view of the prior art. Defendants, as well as others in the field, have distributed and sold products meeting each of the limitations of the asserted claims of the Patents-in-Suit, and have been commercially successful in doing so. These products have also been commercially praised. In addition, before the conception of the inventions of the Patents-in-Suit, there was a significant, long-felt, latent need for the inventions embodied in these products. Others failed to develop inventions that would fill this need.

ACT identifies at least the following objective indicia of non-obviousness as supporting the validity of the Patents-in-Suit: long-felt but unresolved needs, recognition of a problem, commercial success, industry praise, and copying of the invention.

Long Felt But Unresolved Needs / Recognition of a Problem

At the time of the invention of the '025 Patent, video broadcast services via digital broadcasts or networks are popular, which creates a demand for higher moving-picture coding efficiency for recording a larger amount of moving pictures at a higher picture quality and definition. Prior art methods of video-data compression included a combination of MC (Motion Compensation) and DCT (Discrete Cosine Transform), where the MC is conducted for each rectangular zone (typically, a square block), to detect the degree of motion based on the assumption that all of the pixels in each rectangular zone exhibit the same motion, thus generating motion-vector data. This method sometimes causes a video signal to be discontinuous on an MC-block border in a predictive picture constituted by spatially arranged MC blocks. Such a discontinuous situation on the MC-block border results from per-block coding procedures, such as, detection of

the degree of motion followed by orthogonal transform, quantization, etc. This phenomenon becomes more remarkable as the amount of data for use in coding becomes smaller, which is mostly noticeable as block distortion. Discontinuity on a block border and mismatching of texture data in block are mostly caused by a larger motion of an object in a moving picture, deformation of the object itself, variation in relativity among several objects, i.e., disappearance or appearance of the objects, etc., between pictures of moving objects. Several methods were previously suggested but the discontinuous situation between blocks may not be mitigated enough, which depends on the degree of smoothing. For example, a lower degree of smoothing than required cannot mitigate enough a discontinuous situation between blocks which thus remains as block distortion. In contrast, a higher degree of smoothing than required can mitigate the discontinuous situation between blocks, which is, nevertheless, too much for texture data in block, thus resulting in low quality in the texture data. Smoothing is applied to a predictive picture produced by motion compensation after an optimum block is selected in motion estimation, thus such a block may not always be optimum after this procedure. There may be several blocks having the same quality as that block in the predictive picture after smoothing. Thus, it requires a larger amount of computation for obtaining more appropriate motion-vector data because of repeated operations of motion estimation, motion compensation and smoothing procedures for obtaining optimum motion-vector data. The invention of the '025 Patent does not utilize the prior art smoothing procedure and can produce a predictive picture maintaining continuity of a video signal included in the predictive picture even on a block border, with no discontinuous state between blocks which appears in typical motion estimation and compensation. The invention of the '025 Patent can also efficiently transfer, receive or reproduce a coded bitstream having a coded amount smaller than known art.

At the time of the invention of the '303 Patent, services for compression-coding content such as video images, sounds, and the like and transmitting compression-coded content in real time through a network have been growing with the improvement of the performance of mobile terminals such as smartphones and the like, the extension of a network band due to the introduction of LTE and the like, and the progress of a video image compression coding technology. In a network such as the Internet (IP network), best-effort type transmission is performed, and bandwidth is not guaranteed. Therefore, a transmission rate changes depending on the number of users, the location of use, and the like. Further, in a wireless network, the network can be temporarily disconnected. While TCP provides quality assurance such as retransmission control and is used in non-real time data transmission, quality assurance involving retransmission control is accompanied with delay and is thus not suitable for real-time data transmission. Conventional technologies either (i) represent a technology where selected data is transmitted in real time and unselected data that has not been transmitted is then transmitted; or (ii) a single video image is duplicated for highly-compressed video image data and low-compressed video image data and transmitted. A problem with the first conventional technology is that a real-time video image transmission and viewing of high-quality video images cannot be achieved at the same time, while a problem with the second technology is a decrease in transmission efficiency. The invention of the '303 Patent provides the two-fold benefit of simultaneous real-time video transmission with high-quality viewing and a compression method for efficient transmission.

At the time of the invention of the '995 Patent, prior art methods existed that used decoded pictures obtained by a local decoding as reference pictures for estimation of motions to create data on motion vectors, and use of data on motion vectors created by compensation of motions, to create such predictive pictures as having nearest image qualities to target pictures as encoding targets,

followed by determining difference data between predictive pictures and target pictures, and implementing on the difference data a process for a prescribed encoding to attain a high efficient encoding making use of high correlations in the temporal direction. However, these methods fail to allot a sufficient code rate and therefore cause deficient precision of data on motion vectors or deficient attainment of the quality of images of locally decoded reference pictures, and degradation of image qualities of predictive pictures, resulting in reduced encoding efficiencies. Similar prior art techniques for hierarchical encoding services on moving pictures, which also include predictive pictures or predictive blocks created from reference pictures of a layer lower than the layer in which a current encoding is made, for use in combination with target pictures or target blocks of the current layer to make an inter-layer prediction in between, aiming at still enhanced encoding efficiencies making use of high correlations between different spatial resolutions, are subject to the same deficiencies. Still other prior art methods involve implementing a process for a prescribed resolution conversion on moving pictures input as encoding targets with a spatial resolution (or a base or standard resolution), creating moving pictures with a resolution (low resolution) lower than the standard resolution of the input moving pictures, to make a hierarchical encoding on moving pictures between two or more layers making use of high correlations between layers. However, in such prior art systems of hierarchical encoding, even if the encoding process implemented was reversible, input moving pictures would undergo a band limitation to information on their spatial frequency components in the spatial direction that can be represented by the standard resolution, in addition to the implementation of a hierarchical encoding including a process to be implemented on the input moving pictures for such an encoding that involves decoded pictures obtained through a local decoding in course of hierarchical encoding, or by decoding bit streams encoded by way of hierarchical encoding, with image qualities nearest to those of input moving pictures under given

encoding conditions, thus affording to make use of correlations between associated layers to estimate new information on spatial frequency components, while failing to encode and transmit more information on spatial frequency components than the information on spatial frequency components that can be represented by the standard resolution, as a problem. The invention of the '995 Patent transmits more information on spatial frequency components than information on spatial frequency components that can be represented by a resolution of input moving pictures in order to maintain high image quality of predictive pictures and enhanced encoding efficiencies.

Commercial Success / Industry Praise:

Each of the '025 Patent, '303 Patent, '995, and '448 Patent, relate to AV1 codecs. AV1 was designed to “blaze the trail for high-quality compressed video playback.” <https://www.xda-developers.com/av1/>. In 2018, AV1 was considered “[a]t least 30% better than current generation video codecs.” ADVANCED_CODING_0016369. There have been multiple benefits of AV1 since its release, including but not limited to: (1) an increase in video quality; (2) enablement of new technologies (*e.g.*, 4K, 8K, HFR, HDR, etc.); (3) a reduction in rebuffering events; and (4) a decrease in time to first frame. ADVANCED_CODING_0016369. Further, the adoption of AV1 has significantly reduced total encoding and delivery costs due to its efficiency. ADVANCED_CODING_0016368. AV1 is presently 30% more efficient than VP9 and HEVC, “allowing for streaming of 4K and HDR video without requiring massive increase in bandwidth.” ADVANCED_CODING_0014134; *see* ADVANCED_CODING_0016368. Originally, HEVC’s main advantage over AV1 was its support of available hardware from major manufacturers; however, HEVC has lost its edge over AV1 due to the increased production of devices that support AV1 hardware decoding because technology companies believe that “AV1 is clearly the go-to

codec for the future.” <https://www.xda-developers.com/av1/>. Each of the innovations in the ’025 Patent, the ’995 Patent, and the ’303 Patent are responsible for the benefits described above:

The ’025 Patent describes that motion compensation known in the art at the time had many problems. One problem with using block-based motion compensation is that objects inside a block do not always stay the same as they move. Examples include an object moving more than expected, the object deforming as it moves, or the disappearance or appearance of objects between frames. ’025 Patent, 1:28-54. Rather than using a smoothing filter on the borders of the blocks, the ’025 Patent covers a “zone border motion estimator” and “zone border motion compensator” that do a better job of estimating a predictive picture based on matching what it calls “boundary conditions” that corresponds to the border motion vector data. ’025 Patent, 2:30-38; 2:44-67; 11:56-12:11; *see* *ADVANCED_CODING_0015034*, at 15036 (showing that “Inter Prediction [utilizes] Overlapped Block Motion Compensation [to] [r]educe discontinuities at block edges due to motion compensation across the clock boundary using different motion vectors”). Better predictive pictures result in higher texture quality in an image block and coding efficiency at a low bit rate. ’025 Patent, 1:55-2:3; 2:4-26.

The ’303 Patent describes that when transmitting video over the internet, there is uncertainty of how much bandwidth, or space, is going to be available to send the video. The ’303 Patent enables real-time switching of video quality while one is in the middle of streaming a video. ’303 Patent, 1:50-60. This makes it “now possible to stream one-to-many, real-time low-latency video using the latest high-definition video codec.” *ADVANCED_CODING_0013937*.

The ’995 Patent describes that there are many ways to upscale videos described in the prior art, but all of them involve predicting all of the extra pixels from the existing pixels. This causes various issues and errors, and upscaled videos usually suffer from some motion blur, resulting in

lower resolution videos. The '995 Patent utilizes upscaling (*e.g.*, super-resolution) on a decoded base layer of a layered coding to enhance lower resolution videos into high resolution. '995 Patent, 7:18-48; *see* ADVANCED_CODING_0014503, at 14508 (supporting “8K video processing including...super resolution, etc.”); ADVANCED_CODING_0014610, at 14613 (“Rich collaboration... with more immersive and personal AI-enhanced experiences, including... video super-resolution.”). This also has benefits beyond video quality. ADVANCED_CODING_0014374, at 14375 (claiming “45% power savings with [AI-super resolution]”).

ACT further identifies the following documents from which information responsive to the benefits of AV1 may be obtained: ADVANCED_CODING_0013176–ADVANCED_CODING_0016369.

ACT further identifies the following documents from which information responsive to this Interrogatory may be obtained: Confidential Settlement Agreement between Advanced Coding Technologies LLC and TikTok Inc., dated September 20, 2023; Settlement and License Agreement between LG Electronics Inc. and Advanced Coding Technologies LLC, dated May 28, 2024; Settlement and Patent License Agreement between Samsung Electronics Co., Ltd. and Advanced Coding Technologies LLC, dated September 10, 2024.

Pursuant to Federal Rule of Civil Procedure 33(d), ACT directs Defendants to any of their own financial documents and positive reviews of the Accused Products.

Praise

The industry has been receptive to the AV1 codec. For example, Tarek Amara, the Engineering Manager of Video Encoding at Twitch, extols the benefits of switch frames, one of the inventive aspects of the '303 Patent, as resulting in up to 20% bitrate savings over using key

frames, which take up more space. Specifically, “Tarek Amara from Twitch explains the idea in AV1 of introducing S-Frames, sometimes called ‘switch frames’, which take the role of the more traditional I or IDR frames. If a frame is marked as an IDR frame, this means the decoder knows it can start decoding from this frame without worrying that it’s referencing some data that came before this frame. By doing this, you can allow frequent points at which a decoder can enter a stream. IDR frames are typically I frames which are the highest bandwidth frames, by a large proportion. This is because they are a complete rendition of a frame without any of the predictions you find in P and B frames. Because IDR frames are so large, if you want to keep overall bandwidth down, you should reduce the number of them. However, reducing the number of frames reduces the number of ‘in points’ for the stream meaning a decoder then has to wait longer before it can start displaying the stream to the viewer. An S-Frame brings the benefits of an IDR in that it still marks a place in the stream where the decoder can join, free of dependencies on data previously sent. But the S-Frame takes up much less space. Tarek looks at how an S-Frame is created, the parameters it needs to obey and explains how the frames are signalled. To finish off he presents tests run showing the bitrate improvements that were demonstrated.” *See* <https://thebroadcastknowledge.com/tag/s-frame/>; *see also* <https://www.youtube.com/watch?v=o5sJX6VA34o> (describing how “S-frame (Switching Frame) was added to the AV1 video encoder to allow shorter segments in ABR, enabling low latency live streaming without the burden of using bit-consuming IDR frames. Segments will be allowed to start with S-frame and video player could switch, decode and play at any segment boundary. This talk will cover specifics of S-frame and show how up to 20% bitrate savings could be achieved on top of AV1 encoder.”).

Copying of the Invention:

Copying of the invention is evidenced by at least the Accused Products in this case. Therefore, ACT incorporates by reference, as if fully set forth herein, its Disclosure of Asserted Claims and Infringement Contentions, served October 16, 2023 and any supplementation thereto. ACT incorporates by reference the complaints filed in *Advanced Coding Technologies LLC v. LG Electronics Inc. and LG Electronics U.S.A., Inc.*, Case No. 2:22-cv-00501-JRG-RSP (E.D. Tex.); *Advanced Coding Technologies LLC v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.*, Case No. 2:22-cv-00499-JRG-RSP (E.D. Tex.); and *Advanced Coding Technologies LLC v. Apple, Inc.*, Case No. 2:24-cv-00572 and -00687 (E.D. Tex.).

Licenses to the Asserted Patents:

Several companies have taken licenses to the Asserted Patents. ACT has licensed the Asserted Patents to TikTok Inc., LG Electronics Inc., and Samsung Electronics Co., Ltd., and ACT intends to produce those settlement/license agreements upon being provided proper permission. That several companies were willing to take a license to the Asserted Patents, including several instances doing so without challenging their validity in court or at the PTAB is evidence that those companies believed the Asserted Patents are valid.

Discovery in this case is ongoing and ACT continues to investigate this matter. ACT will supplement this response to provide any additional responsive, non-privileged information to the extent such information exists, can be ascertained after a reasonable investigation in accordance with the Federal Rules of Civil Procedure and any applicable Court order, and is in the possession, custody, or control of ACT. ACT reserves the right to supplement its response to this Interrogatory, including identifying additional documents pursuant to Fed. R. Civ. P. 33(d).

INTERROGATORY NO. 6

Separately for each Asserted Claim, describe in detail the factual and legal basis and supporting evidence for the damages to which You contend You are entitled as a result of Google's alleged infringement, including without limitation, whether Your damages claims are based on lost profits, a reasonable royalty, or other damages theory, any royalty rate, royalty base, lost profits, disgorgements, enhanced damages, attorney's fees, or costs that You contend are appropriate, any products that You contend compete with the Accused Products, whether noninfringing alternative exist, including the acceptability and availability of any such alternatives, the date(s) on which You contend the hypothetical negotiation would have occurred with respect to each Asserted Patent, the time period for which You contend You are entitled to collect damages from Google due to any alleged infringement of each Asserted Patent, whether the royalty base is based on the value of the entire product or a portion thereof (if so, identify the portion), any factual contentions related to the hypothetical negotiation, including the *Georgia-Pacific* factors or any other factors that are relevant to the determination of royalties, the appropriate measure and amount of a reasonable royalty, all Documents and Things that support, contradict, or relate to Your contentions, and all Persons having knowledge of, contradicting, or otherwise relating to Your contentions and all Persons on which You intend to rely to support Your contentions.

RESPONSE TO INTERROGATORY NO. 6

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, seeking information not proportional to the needs of the case. "for each Asserted Claim, describe in detail the factual and legal basis and supporting evidence for the damages," "any products that You contend compete with the Accused Products," "including the acceptability and availability of any such alternatives," "any factual contentions related to the hypothetical negotiation," "all Documents and Things that support, contradict, or relate to Your contentions," and "all Persons having knowledge of, contradicting, or otherwise relating to Your contentions." ACT further objects to this Interrogatory to the extent it calls for a legal conclusion. ACT objects to this Interrogatory to the extent that it seeks information protected by the attorney-client privilege, work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT further objects to this Interrogatory as containing multiple subparts, each of which counts towards Defendant's total number of Interrogatories. ACT objects to this Interrogatory as seeking information that is properly the

subject of expert reports before the deadline for such disclosures, and without the benefit of claim construction.

Subject to and without waiving its General and Specific Objections to this Interrogatory, ACT responds as follows:

ACT incorporates by reference its forthcoming expert report on damages, which will be served in accordance with the Second Amended Docket Control Order (Dkt. 39).

Subject to the foregoing objections, under Rule 33(d) of the Federal Rules of Civil Procedure, ACT identifies the following assignment history documents and agreements regarding the licensing or purchase of the Asserted Patents, produced as ADVANCED_CODING_0040010-0041566.

ACT further identifies the following documents from which information responsive to this Interrogatory may be obtained: Confidential Settlement Agreement between Advanced Coding Technologies LLC and TikTok Inc., dated September 20, 2023;; Settlement and License Agreement between LG Electronics Inc. and Advanced Coding Technologies LLC, dated May 28, 2024; and Settlement and Patent License Agreement between Samsung Electronics Co., Ltd. and Advanced Coding Technologies LLC, dated September 10, 2024.

ACT incorporates its response to Interrogatory Nos. 5, 7-11, and 15 pertaining to the valuation of the Asserted Patents upon which the measure and proper calculation of damages and harm claimed against Defendant may be computed.

Discovery in this case is ongoing, and ACT continues to investigate this matter. ACT will supplement this response to provide any additional responsive, non-privileged information to the extent such information exists, can be ascertained after a reasonable investigation in accordance with the Federal Rules of Civil Procedure and any applicable Court order, and is in the possession,

custody, or control of ACT. ACT reserves the right to supplement its response to this Interrogatory, including identifying additional documents pursuant to Fed. R. Civ. P. 33(d).

INTERROGATORY NO. 7

Identify the smallest saleable patent practicing unit for each Accused Product, and state all factual and legal support forming the basis for Your contention.

RESPONSE TO INTERROGATORY NO. 7

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, seeking information not proportional to the needs of the case, particularly to the extent it requests “for each Accused Product” and “all factual and legal support forming the basis for Your contention.” ACT further objects to this Interrogatory to the extent it calls for a legal conclusion. ACT objects to this Interrogatory as containing multiple subparts, each of which counts towards Defendant’s total number of Interrogatories. ACT objects to this Interrogatory to the extent that it seeks information protected by the attorney-client privilege, work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT objects to this Interrogatory as seeking information that is properly the subject of expert reports before the deadline for such disclosures, and without the benefit of claim construction.

Subject to and without waiving its General and Specific Objections to this Interrogatory, ACT responds as follows:

ACT incorporates by reference, as if fully set forth herein, its forthcoming expert report on damages and/or infringement, which will be served in accordance with the Second Amended Docket Control Order (Dkt. 39).

Discovery in this case is ongoing and ACT continues to investigate this matter. ACT will supplement this response to provide any additional responsive, non-privileged information to the

extent such information exists, can be ascertained after a reasonable investigation in accordance with the Federal Rules of Civil Procedure and any applicable Court order, and is in the possession, custody, or control of ACT. ACT reserves the right to supplement its response to this Interrogatory, including identifying additional documents pursuant to Fed. R. Civ. P. 33(d).

INTERROGATORY NO. 8

Describe in detail any determination of the value of any of the Asserted Patents (whether individually, collectively, or as part of a portfolio of other patents or intellectual property) made by You, made on Your behalf, made by any prior assignee, or made by any Third Party, including without limitation: the basis for that determination, such as any industry-wide standard used; any experts consulted; any economic, statistical, accounting, or other market analyses undertaken, whether by You or an independent Person; any value or consideration paid or given for the patent, including before the approval of its patent application; the costs, expenses or investments made or incurred in the development of the patent; and/or any comparison to similar and/or complementary patents or technologies, whether held by You or any other person, and whether already patented, in the process of being patented, or being developed with the intention or possibility of being patented.

RESPONSE TO INTERROGATORY NO. 8

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, seeking information not proportional to the needs of the case, particularly to the extent it requests “any determination of the value of any of the Asserted Patents,” “made by You, made on Your behalf, made by any prior assignee, or made by any Third Party,” “any industry-wide standard used,” “any experts consulted,” “any economic, statistical, accounting, or other market analyses undertaken,” and “any comparison to similar and/or complementary patents or technologies.” ACT objects to this Interrogatory to the extent it calls for a legal conclusion. ACT objects to this Interrogatory as containing multiple subparts, each of which counts towards Defendant’s total number of Interrogatories. ACT objects to this Interrogatory to the extent it seeks information that may be protected from disclosure by Protective Orders, Non-Disclosure Agreements, or is otherwise in the possession of a third party to which a duty of confidentiality is owed. ACT objects to this

Interrogatory to the extent it seeks information protected by the attorney-client privilege, work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT objects to this Interrogatory as seeking information that is properly the subject of expert reports before the deadline for such disclosures, and without the benefit of claim construction.

Subject to and without waiving its General and Specific Objections to this Interrogatory, ACT responds as follows:

ACT incorporates by reference its forthcoming expert report on damages, which will be served in accordance with the Second Amended Docket Control Order (Dkt. 39).

ACT incorporates by reference its responses to Interrogatories Nos. 5 and 9.

Subject to the foregoing objections, under Rule 33(d) of the Federal Rules of Civil Procedure, ACT identifies the following documents, produced as ADVANCED_CODING_0012323-ADVANCED_CODING_0016435

Discovery in this case is ongoing and ACT continues to investigate this matter. ACT will supplement this response to provide any additional responsive, non-privileged information to the extent such information exists, can be ascertained after a reasonable investigation in accordance with the Federal Rules of Civil Procedure and any applicable Court order, and is in the possession, custody, or control of ACT. ACT reserves the right to supplement its response to this Interrogatory, including identifying additional documents pursuant to Fed. R. Civ. P. 33(d).

INTERROGATORY NO. 9

If You contend that any feature(s) of any Accused Product creates any basis for customer demand for that product and/or provides value to that product, describe in detail the factual and legal basis and supporting evidence for each of Your contentions, including all support for any assertions that the features (patented or otherwise) drive demand or substantially creates value for the component parts, Documents or Communications that support, contradict or relate to Your contentions, and identify all Persons having knowledge about the facts described in Your response.

RESPONSE TO INTERROGATORY NO. 9

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, seeking information not proportional to the needs of the case, particularly to the extent it requests “any feature(s) of any Accused Product creates any basis for customer demand for that product and/or provides value to that product,” “all support for any assertions that the features (patented or otherwise) drive demand or substantially creates value for the component parts,” and “all Persons having knowledge about the facts described in Your response.” ACT further objects to this Interrogatory to the extent it calls for a legal conclusion. ACT objects to this Interrogatory as containing multiple subparts, each of which counts towards Defendant’s total number of Interrogatories. ACT objects to this Interrogatory to the extent it seeks information that may be protected from disclosure by Protective Orders, Non-Disclosure Agreements, or is otherwise in the possession of a third party to which a duty of confidentiality is owed. ACT objects to this Interrogatory to the extent that it seeks information protected by the attorney-client privilege, work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT objects to this Interrogatory as seeking information that is already in Defendant’s possession, custody, or control, or is otherwise readily obtainable to Defendants with lesser or equal burden to ACT. ACT objects to this Interrogatory as seeking information that is properly the subject of expert reports before the deadline for such disclosures, and without the benefit of claim construction.

Subject to and without waiving its General and Specific Objections to this Interrogatory, ACT responds as follows:

ACT incorporates by reference, as if fully set forth herein, its forthcoming expert report on damages, validity, and/or infringement, which will be served in accordance with the Second Amended Docket Control Order (Dkt. 39).

ACT identifies the Patents-in-Suit and file histories as describing the alleged technical benefits and advantages of the claimed inventions of the Asserted Claims, produced as ACT-GOOGLE00000001-00001673; ACT-GOOGLE00005773-00007891.

The '025 Patent relates to a moving-picture coding apparatus, method, and program, and a moving-picture decoding apparatus, method, and program, with a boundary condition obtained between moving-picture blocks and applied-for coding or decoding. Video broadcast services via digital broadcasts or networks are popular, which creates a demand for higher moving-picture coding efficiency for recording a larger amount of moving pictures at a higher picture quality and definition. Prior art methods of video-data compression included a combination of MC (Motion Compensation) and DCT (Discrete Cosine Transform), where the MC is conducted for each rectangular zone (typically, a square block), to detect the degree of motion based on the assumption that all of the pixels in each rectangular zone exhibit the same motion, thus generating motion-vector data. This method sometimes causes a video signal to be discontinuous on an MC-block border in a predictive picture constituted by spatially arranged MC blocks. Such a discontinuous situation on the MC-block border results from per-block coding procedures, such as detection of the degree of motion followed by orthogonal transform, quantization, etc. This phenomenon becomes more remarkable as the amount of data for use in coding becomes smaller, which is mostly noticeable as block distortion. Discontinuity on a block border and mismatching of texture data in block are mostly caused by a larger motion of an object in a moving picture, deformation of the object itself, variation in relativity among several objects, *i.e.*, disappearance or appearance

of the objects, etc., between pictures of moving objects. Several methods were previously suggested but the discontinuous situation between blocks may not be mitigated enough, which depends on the degree of smoothing. For example, a lower degree of smoothing than required cannot mitigate enough of a discontinuous situation between blocks which thus remains as block distortion. In contrast, a higher degree of smoothing than required can mitigate the discontinuous situation between blocks, which is, nevertheless, too much for texture data in block, thus resulting in low quality in the texture data. Smoothing is applied to a predictive picture produced by motion compensation after an optimum block is selected in motion estimation, thus such a block may not always be optimum after this procedure. There may be several blocks having the same quality as that block in the predictive picture after smoothing. Thus, it requires a larger amount of computation for obtaining more appropriate motion-vector data because of repeated operations of motion estimation, motion compensation, and smoothing procedures for obtaining optimum motion-vector data. The invention of the '025 Patent does not utilize the prior art smoothing procedure and can produce a predictive picture maintaining continuity of a video signal included in the predictive picture even on a block border, with no discontinuous state between blocks which appears in typical motion estimation and compensation. The invention of the '025 Patent can also efficiently transfer, receive, or reproduce a coded bitstream having a coded amount smaller than known art.

One of the features of the Asserted Claims of the '025 Patent is a blending of data to achieve a smoother output picture, with that blending occurring pursuant to Poisson's Equation. AV1 uses Overlapped Block Motion Compensation (OBMC) in its algorithms for performing decoding. OBMC leads to certain performance improvements and increases in efficiency.

AV1 is approximately 30% more efficient than prior codecs, such as HEVC and VP9, and 50% more efficient than prior codecs, such as H.264.

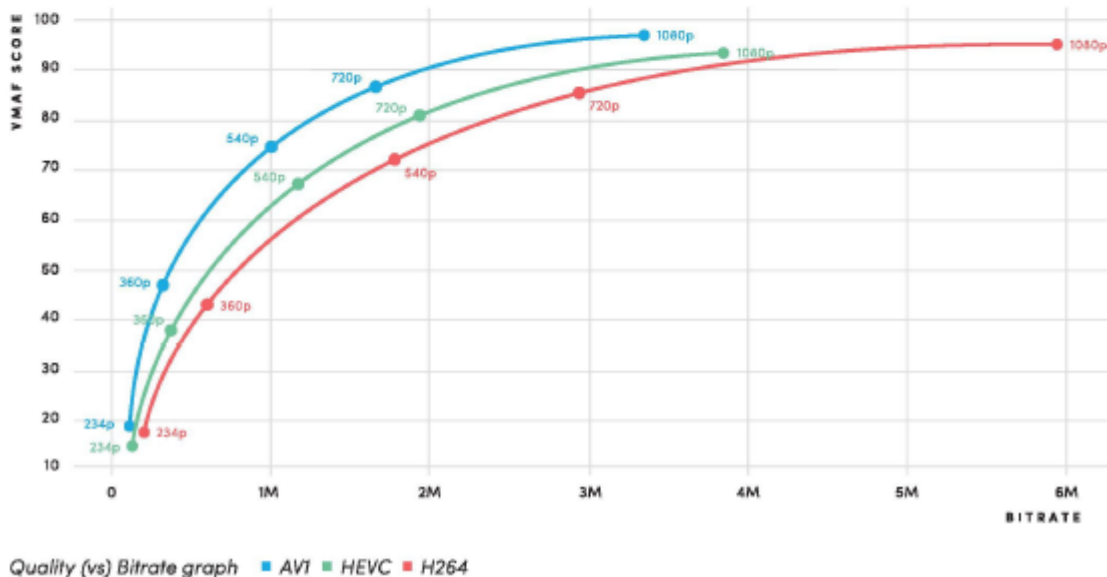
AV1 vs H264 and HEVC

As part of our efforts in bringing AV1 to everyone in the media industry, we have been also extensively testing and benchmarking the codec compression performance of AV1. We have found that the AV1 offered via our API performs significantly better than the traditional codecs H264 and HEVC. The quality results based on internal testing are summarized in the table below.

CODEC	BD-Rate (IN %)	BD-VMAF
H264	-50.2	12.3
HEVC	-28.9	6.3

On average we found that AV1 can offer the same visual quality at 50% less bitrate and 30% less bitrate, for H264 and HEVC respectively. These values are averaged out over several kinds of inputs, of varying complexity and lengths, and output profile configurations.

Rate Distortion - Arithmetic Mean (Football)



ADVANCED_CODING_0016361. This performance improvement is due to many incremental changes which lead to an overall more efficient codec.

In a paper published by engineers at Google, *Variable Block-Size Overlapped Block Motion Compensation in the Next Generation Open-Source Video Codec*, published in 2017, the authors ran experiments comparing (1) the base AV1 codec; (2) OBMC, and (3) Non-causal OBMC, and encoded 150 frames of video at a wide range of target bit rates. In their experimental results, the authors disclosed the bit rate savings (in terms of percentage) showing the efficiencies gained by using OBMC and NOBMC versus the baseline AV1 codec:

Table 1. BDRate(%) of the proposed experiments for test sets with different resolution, in comparison with the AV1 baseline

	lowres	midres	hdres
OBMC	-2.325	-2.241	-2.204
NCOBMC	-2.845	-2.638	-2.538

ACT-GOOGLE00002451, at 00002454.

The '303 Patent relates to a video image coding data transmission technology and, more particularly, to a video image coding data transmission technology for transmitting video image coding data in real-time. Services for compression-coding content, such as video images, sounds, and the like, and transmitting compression-coded content in real-time through a network have been growing with the improvement of the performance of mobile terminals, such as smartphones and the like, the extension of a network band due to the introduction of LTE and the like, and the progress of a video image compression coding technology. In a network such as the Internet (IP network), best-effort type transmission is performed, and bandwidth is not guaranteed. Therefore, a transmission rate changes depending on the number of users, the location of use, and the like. Further, in a wireless network, the network can be temporarily disconnected. While TCP provides quality assurance, such as retransmission control, and is used in non-real-time data transmission,

quality assurance involving retransmission control is accompanied with delay and is thus not suitable for real-time data transmission. Conventional technologies either (i) represent a technology where selected data is transmitted in real-time and unselected data that has not been transmitted is then transmitted; or (ii) a single video image is duplicated for highly-compressed video image data and low-compressed video image data and transmitted. A problem with the first conventional technology is that a real-time video image transmission and viewing of high-quality video images cannot be achieved at the same time, while a problem with the second technology is a decrease in transmission efficiency. The invention of the '303 Patent provides the two-fold benefit of simultaneous real-time video transmission with high-quality viewing and a compression method for efficient transmission.

AV1 is approximately 30% more efficient than prior codecs, such as HEVC and VP9, and 50% more efficient than prior codecs, such as H.264.

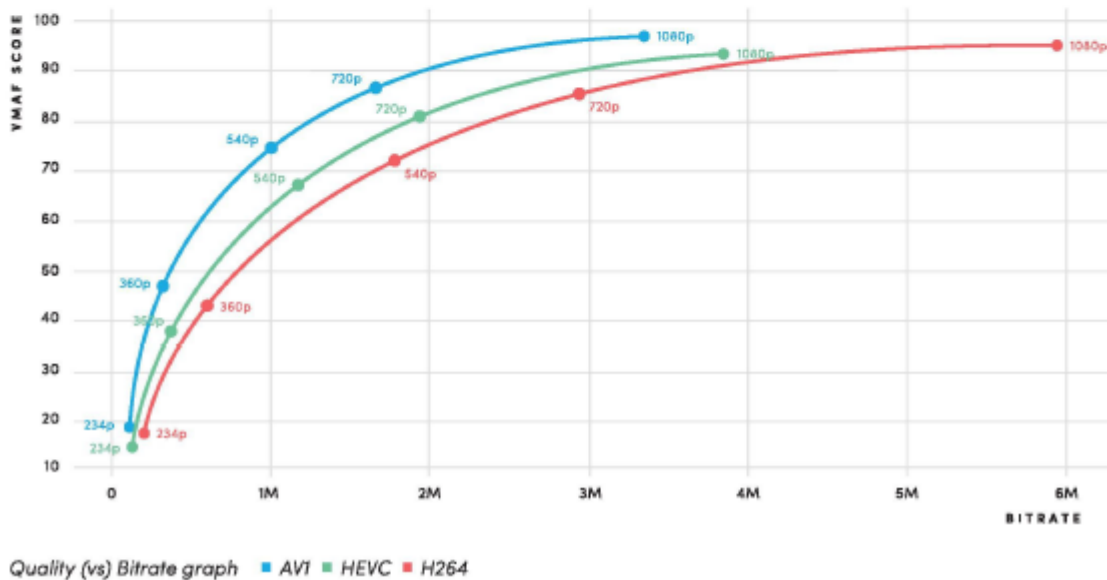
AV1 vs H264 and HEVC

As part of our efforts in bringing AV1 to everyone in the media industry, we have been also extensively testing and benchmarking the codec compression performance of AV1. We have found that the AV1 offered via our API performs significantly better than the traditional codecs H264 and HEVC. The quality results based on internal testing are summarized in the table below.

CODEC	BD-Rate (IN %)	BD-VMAF
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On average we found that AV1 can offer the same visual quality at 50% less bitrate and 30% less bitrate, for H264 and HEVC respectively. These values are averaged out over several kinds of inputs, of varying complexity and lengths, and output profile configurations.

Rate Distortion - Arithmetic Mean (Football)

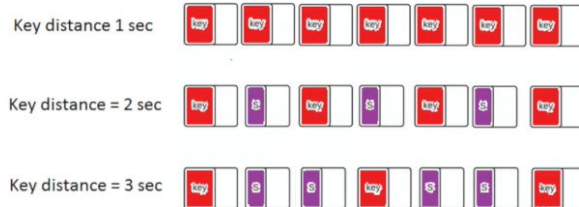


ADVANCED_CODING_0016361. This performance improvement is due to many incremental changes which lead to an overall more efficient codec.

Switch frames, one of the inventive aspects of the '303 Patent, result in up to 20% bitrate savings over using key frames, which take up more space. "Tarek Amara from Twitch explains

the idea in AV1 of introducing S-Frames, sometimes called ‘switch frames’, which take the role of the more traditional I or IDR frames. If a frame is marked as an IDR frame, this means the decoder knows it can start decoding from this frame without worrying that it’s referencing some data that came before this frame. By doing this, you can allow frequent points at which a decoder can enter a stream. IDR frames are typically I frames which are the highest bandwidth frames, by a large proportion. This is because they are a complete rendition of a frame without any of the predictions you find in P and B frames. Because IDR frames are so large, if you want to keep overall bandwidth down, you should reduce the number of them. However, reducing the number of frames reduces the number of ‘in points’ for the stream meaning a decoder then has to wait longer before it can start displaying the stream to the viewer. An S-Frame brings the benefits of an IDR in that it still marks a place in the stream where the decoder can join, free of dependencies on data previously sent. But the S-Frame takes up much less space. Tarek looks at how an S-Frame is created, the parameters it needs to obey, and explains how the frames are signalled. To finish off he presents tests run showing the bitrate improvements that were demonstrated.” *See* <https://thebroadcastknowledge.com/tag/s-frame/>; *see also* <https://www.youtube.com/watch?v=o5sJX6VA34o> (describing how “S-frame (Switching Frame) was added to the AV1 video encoder to allow shorter segments in ABR, enabling low latency live streaming without the burden of using bit-consuming IDR frames. Segments will be allowed to start with S-frame and a video player could switch, decode, and play at any segment boundary. This talk will cover specifics of S-frame and show how up to 20% bitrate savings could be achieved on top of AV1 encoder.”). As indicated below, depending on the key frame timing length, the benefit from using 1second s-frames yields a proportionally greater benefit in terms of bitrate savings (e.g., average bitrate savings of 17% over use of a 3 second key frame distance).

Experimental results



- ▶ Sframe frequency: 1 sec. Key distance: 2 sec/ 3 sec
- ▶ The average bitrate savings for 2 sec key frame distance is 15%.
- ▶ The average bitrate savings for 3 sec key frame distance is 17%.

<https://www.youtube.com/watch?v=o5sJX6VA34o>

The '995 Patent relates to a moving picture encoding system, a moving picture encoding method, a moving picture encoding program, a moving picture decoding system, a moving picture decoding method, a moving picture decoding program, a moving picture reencoding system, a moving picture reencoding method, and a moving picture reencoding program adapted to work on moving picture sequences to implement processes such as those for super-resolution enlargement. Prior art methods exist that use decoded pictures obtained by a local decoding as reference pictures for estimation of motions to create data on motion vectors, and use of data on motion vectors created by compensation of motions, to create such predictive pictures as having nearest image qualities to target pictures as encoding targets, followed by determining difference data between predictive pictures and target pictures, and implementing on the difference data a process for a prescribed encoding to attain a high efficient encoding making use of high correlations in the temporal direction. However, these methods fail to allot a sufficient code rate and therefore cause

deficient precision of data on motion vectors or deficient attainment of the quality of images of locally decoded reference pictures, and degradation of image qualities of predictive pictures, resulting in reduced encoding efficiencies. Similar prior art techniques for hierarchical encoding services on moving pictures, which also include predictive pictures or predictive blocks created from reference pictures of a layer lower than the layer in which a current encoding is made, for use in combination with target pictures or target blocks of the current layer to make an inter-layer prediction in between, aiming at still enhanced encoding efficiencies making use of high correlations between different spatial resolutions, are subject to the same deficiencies. Still other prior art methods involve implementing a process for a prescribed resolution conversion on moving pictures input as encoding targets with a spatial resolution (or a base or standard resolution), creating moving pictures with a resolution (low resolution) lower than the standard resolution of the input moving pictures, to make a hierarchical encoding on moving pictures between two or more layers making use of high correlations between layers. However, in such prior art systems of hierarchical encoding, even if the encoding process implemented was reversible, input moving pictures would undergo a band limitation to information on their spatial frequency components in the spatial direction that can be represented by the standard resolution, in addition to the implementation of a hierarchical encoding including a process to be implemented on the input moving pictures for such an encoding that involves decoded pictures obtained through a local decoding in the course of hierarchical encoding, or by decoding bit streams encoded by way of hierarchical encoding, with image qualities nearest to those of input moving pictures under given encoding conditions, thus affording to make use of correlations between associated layers to estimate new information on spatial frequency components, while failing to encode and transmit more information on spatial frequency components than the information on spatial frequency

components that can be represented by the standard resolution, as a problem. The invention of the '995 Patent transmits more information on spatial frequency components than information on spatial frequency components that can be represented by a resolution of input moving pictures in order to maintain high image quality of predictive pictures and enhanced encoding efficiencies.

AV1 is approximately 30% more efficient than prior codecs, such as HEVC and VP9, and 50% more efficient than prior codecs, such as H.264.

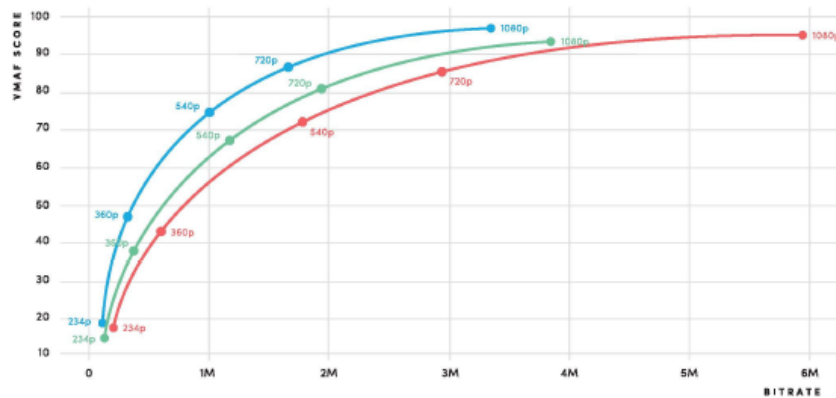
AV1 vs H264 and HEVC

As part of our efforts in bringing AV1 to everyone in the media industry, we have been also extensively testing and benchmarking the codec compression performance of AV1. We have found that the AV1 offered via our API performs significantly better than the traditional codecs H264 and HEVC. The quality results based on internal testing are summarized in the table below.

CODEC	BD-Rate (IN %)	BD-VMAF
H264	-50.2	12.3
HEVC	-28.9	6.3

On average we found that AV1 can offer the same visual quality at 50% less bitrate and 30% less bitrate, for H264 and HEVC respectively. These values are averaged out over several kinds of inputs, of varying complexity and lengths, and output profile configurations.

Rate Distortion - Arithmetic Mean (Football)



Quality (vs) Bitrate graph ■ AV1 ■ HEVC ■ H264

ADVANCED_CODING_0016361.

This performance improvement is due to many incremental changes which lead to an overall more efficient codec.

The asserted claims of the '995 and '448 Patents cover the super-resolution encoding/decoding process as performed in AV1. The performance improvements of this algorithm have been studied by others. For example, in a paper by engineers at Google, *In-loop Frame Super-resolution in AV1*, published in 2019, the authors performed a study of the performance improvements of the super-resolution feature of AV1. For video coding, the authors encoded 20 frames of video at full resolution and then the same number of frames using super-resolution. The results in terms of percentage of bitrate savings are shown below:

Table 3. BDRate Improvement For Video Coding

Test Set / Clip	BDRate (%)
sunflower_720p25.y4m	-0.892
riverbed_1080p25.y4m	-0.770
cyclists_720p30.y4m	-0.502
crew_720p30.y4m	-0.248
kimono1_1080p24.y4m	-0.247

ACT-GOOGLE00002428, at 00002432.

Discovery in this case is ongoing and ACT continues to investigate this matter. ACT will supplement this response to provide any additional responsive, non-privileged information to the extent such information exists, can be ascertained after a reasonable investigation in accordance with the Federal Rules of Civil Procedure and any applicable Court order, and is in the possession, custody, or control of ACT. ACT reserves the right to supplement its response to this Interrogatory, including identifying additional documents pursuant to Fed. R. Civ. P. 33(d).

INTERROGATORY NO. 10

Identify all licenses, covenants not to sue, or settlement agreements, including any related to the Asserted Patents or Related Patents or Patent Applications, that You contend are relevant to a damages determination and all reasons why You contend each license is relevant

RESPONSE TO INTERROGATORY NO. 10

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, seeking information not proportional to the needs of the case, particularly to the extent it requests identification of “all licenses, covenants not to sue, or settlement agreements, including any related to the Asserted Patents or Related Patents or Patent Applications,” “all reasons why You contend each license is relevant.” ACT objects to this Interrogatory as containing multiple subparts, each of which counts towards Defendant’s total number of Interrogatories. ACT objects to this Interrogatory to the extent that it seeks information protected by the attorney-client privilege, work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT objects to this Interrogatory to the extent it seeks information that may be protected from disclosure by Protective Orders, Non-Disclosure Agreements, or is otherwise in the possession of a third party to which a duty of confidentiality is owed.

Subject to and without waiving its General and Specific Objections to this Interrogatory, ACT responds as follows:

Subject to the foregoing objections, under Rule 33(d) of the Federal Rules of Civil Procedure, ACT identifies the following documents regarding the assignment, licensing, or purchase of the Asserted Patents, produced as `ADVANCED_CODING_0040010-0041566`.

ACT further identifies the following documents from which information responsive to this Interrogatory may be obtained: Confidential Settlement Agreement between Advanced Coding Technologies LLC and TikTok Inc., dated September 20, 2023; Settlement and License Agreement

between LG Electronics Inc. and Advanced Coding Technologies LLC, dated May 28, 2024; and Settlement and Patent License Agreement between Samsung Electronics Co., Ltd. and Advanced Coding Technologies LLC, dated September 10, 2024.

Discovery in this case is ongoing and ACT continues to investigate this matter. ACT will supplement this response to provide any additional responsive, non-privileged information to the extent such information exists, can be ascertained after a reasonable investigation in accordance with the Federal Rules of Civil Procedure and any applicable Court order, and is in the possession, custody, or control of ACT. ACT reserves the right to supplement its response to this Interrogatory, including identifying additional documents pursuant to Fed. R. Civ. P. 33(d).

INTERROGATORY NO. 11

Describe in detail all facts and circumstances relating to each attempt or any attempt to license (whether or not such license was successful), assign, sell, transfer, purchase, commercialize, enforce, or monetize any of the Asserted Patents or Related Patents or Patent Applications made by You, any Named Inventor, any prior assignee of the Asserted Patents, or anyone on their behalf, including without limitation a description of each communication by ACT, any Named Inventor, any prior assignee of the Asserted Patents, or anyone on their behalf relating to such attempts, a description of all discussions and negotiations relating to such attempts including without limitation the outcome of such attempts, the identity of each person knowledgeable about such attempts, and the identity of all documents and things relating to such attempts.

RESPONSE TO INTERROGATORY NO. 11

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, seeking information not proportional to the needs of the case, particularly to the extent it requests identification of “all facts and circumstances relating to each attempt or any attempt to license,” “a description of all discussions and negotiations relating to such attempts,” and “the identity of all documents and things relating to such attempts.” ACT objects to this Interrogatory as seeking information not relevant to any claim or defense of this litigation. ACT objects to this Interrogatory as containing

multiple subparts, each of which counts towards Defendant's total number of Interrogatories. ACT objects to this Interrogatory to the extent that it seeks information protected by the attorney-client privilege, work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT objects to this Interrogatory to the extent it seeks information that may be protected from disclosure by Protective Orders, Non-Disclosure Agreements, or is otherwise in the possession of a third party to which a duty of confidentiality is owed. ACT further objects to this Interrogatory as seeking information that is already in Defendant's possession, custody, or control, or is otherwise readily obtainable to Defendants with lesser or equal burden to ACT.

Subject to and without waiving its General and Specific Objections to this Interrogatory, ACT responds as follows:

ACT incorporates by reference the complaints filed in this case, *Advanced Coding Technologies LLC v. ByteDance Ltd., ByteDance Pte. Ltd., and TikTok Pte. Ltd.*, Case No. 2:22-cv-00129-JRG-RSP (E.D. Tex.), *Advanced Coding Technologies LLC v. LG Electronics Inc. and LG Electronics U.S.A., Inc.*, Case No. 2:22-cv-00501-JRG-RSP (E.D. Tex.); *Advanced Coding Technologies LLC v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.*, Case No. 2:22-cv-00499-JRG-RSP (E.D. Tex.); and *Advanced Coding Technologies LLC v. Apple, Inc.*, Case No. 2:24-cv-00572 and -00687 (E.D. Tex.).

Subject to the foregoing objections, under Rule 33(d) of the Federal Rules of Civil Procedure, ACT identifies the following documents regarding the assignment, licensing, or purchase of the Asserted Patents, produced as ADVANCED_CODING_0040010-0041566.

ACT further identifies the following documents from which information responsive to this Interrogatory may be obtained: Confidential Settlement Agreement between Advanced Coding Technologies LLC and TikTok Inc., dated September 20, 2023; Patent Licensing Agreement

between JVC Kenwood Holdings Inc. and Sony Corporation, dated April 2, 2010; Microsoft – JVC Patent Cross License Agreement among Microsoft Corporation, Microsoft Licensing, GP, and Victor Company of Japan, dated December 31, 2007; Microsoft – Kenwood Patent Cross License Agreement among Microsoft Corporation, Microsoft Licensing, GP, and Kenwood Corporation, dated May 1, 2007; Settlement and License Agreement between LG Electronics Inc. and Advanced Coding Technologies LLC, dated May 28, 2024; and Settlement and Patent License Agreement between Samsung Electronics Co., Ltd. and Advanced Coding Technologies LLC, dated September 10, 2024.

Discovery in this case is ongoing and ACT continues to investigate this matter. ACT will supplement this response to provide any additional responsive, non-privileged information to the extent such information exists, can be ascertained after a reasonable investigation in accordance with the Federal Rules of Civil Procedure and any applicable Court order, and is in the possession, custody, or control of ACT. ACT reserves the right to supplement its response to this Interrogatory, including identifying additional documents pursuant to Fed. R. Civ. P. 33(d).

INTERROGATORY NO. 12

Describe in detail all facts and circumstances relating to any and all rights, interests and ownership in the Asserted Patents, Related Patents or Patent Applications, including without limitation the identity of each person and entity that has a right, interest, and ownership of the Asserted Patents, Related Patents or Patent Applications, and/or the outcome of this action, the nature and scope of such person or entity's rights, interest, or ownership in the Asserted Patents, Related Patents or Patent Applications, and this action, a description of the chain of title and all assignments and transfers or rights for each Asserted Patent and Related Patent or Patent Application (including the identity of all persons or entities within that chain of title), the identity of all persons with knowledge about any of the foregoing, and the identity of all documents and things that relate to any of the foregoing.

RESPONSE TO INTERROGATORY NO. 12

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, seeking information not

proportional to the needs of the case, and seeking information outside ACT's possession, custody, or control, particularly to the extent it requests "all facts and circumstances relating to any and all rights, interests and ownership in the Asserted Patents, Related Patents or Patent Applications," "identity of each person and entity that has a right, interest, and ownership of the Asserted Patents, Related Patents or Patent Applications," "the identity of all persons with knowledge about any of the foregoing," and "the identity of all documents and things that relate to any of the foregoing." ACT objects to this Interrogatory to the extent it seeks information that is in Defendant's possession, custody, or control and/or information that is otherwise readily obtainable and/or publicly available to Defendants with lesser or equal burden to ACT. ACT objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT objects to this Interrogatory to the extent it calls for a legal conclusion. ACT objects to this Interrogatory as compound and containing multiple subparts, each of which counts towards Defendant's total number of Interrogatories because it seeks information for separate and unrelated subject matter. ACT objects to this Interrogatory to the extent it seeks information that may be protected from disclosure by Protective Orders, Non-Disclosure Agreements, or is otherwise in the possession of a third party to which a duty of confidentiality is owed.

Subject to and without waiving its General and Specific Objections to this Interrogatory, ACT responds as follows:

Subject to the foregoing objections, under Rule 33(d) of the Federal Rules of Civil Procedure, ACT identifies the Asserted Patents, their file histories, and assignment histories, produced as ACT-GOOGLE00000001-00001673; ACT-GOOGLE00005773-00007891; ADVANCED_CODING_0040010-0041566.

ACT further identifies the following documents from which information responsive to this Interrogatory may be obtained: Confidential Settlement Agreement between Advanced Coding Technologies LLC and TikTok Inc., dated September 20, 2023; Settlement and License Agreement between LG Electronics Inc. and Advanced Coding Technologies LLC, dated May 28, 2024; and Settlement and Patent License Agreement between Samsung Electronics Co., Ltd. and Advanced Coding Technologies LLC, dated September 10, 2024.

Discovery in this case is ongoing and ACT continues to investigate this matter. ACT will supplement this response to provide any additional responsive, non-privileged information to the extent such information exists, can be ascertained after a reasonable investigation in accordance with the Federal Rules of Civil Procedure and any applicable Court order, and is in the possession, custody, or control of ACT.

INTERROGATORY NO. 13

For each Accused Product, describe in detail the facts and circumstances under which You or any current or previous owner or assignee of any of the Asserted Patents first became aware of each Accused Product, including without limitation the date of such first awareness, the identity of the Person(s) who became so aware, and the identity of all documents and things relating to such awareness.

RESPONSE TO INTERROGATORY NO. 13

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, seeking information not proportional to the needs of the case, and seeking information outside ACT's possession, custody, or control, particularly to the extent it requests "[f]or each Accused Product", and "the identity of all documents and things relating to such awareness." ACT objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT objects to this Interrogatory to the extent it calls for a legal conclusion. ACT objects to this Interrogatory as compound and

containing multiple subparts, each of which counts towards Defendant's total number of Interrogatories because it seeks information for separate and unrelated subject matter. ACT further objects to this Interrogatory to the extent that this Interrogatory is not relevant to any defense pleaded by Defendant.

Subject to the foregoing exceptions and without waiving any of its General or Specific Objections to this Interrogatory, ACT responds as follows:

ACT became aware of the accused functionality shortly after acquiring the assets.

INTERROGATORY NO. 14

For each Asserted Claim, identify each and every Covered Product, including without limitation those by ACT, Victor Company of Japan, Ltd., Kabushiki Kaisha Kenwood, JVC Kenwood Corp., any Predecessor-in-Interest, or any Third Party, that ACT, Victor Company of Japan, Ltd., Kabushiki Kaisha Kenwood, JVC Kenwood Corp., any Predecessor-in-Interest, or any Third Party, contends, or has contended, practices or embodies (or has at any time practiced or embodied) the claim, or results in the practice of the claim when used; describe in detail in a claim chart how each claim limitation is found in each such Covered Product; identify the date of release of that Covered Product; and identify all Persons having knowledge about the facts described in Your response.

RESPONSE TO INTERROGATORY NO. 14

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, seeking information not proportional to the needs of the case, and seeking information outside ACT's possession, custody, or control, particularly to the extent it requests "each Asserted Claim, identify each and every Covered Product," "any Predecessor-in-Interest, or any Third Party, that ACT, Victor Company of Japan, Ltd., Kabushiki Kaisha Kenwood, JVC Kenwood Corp.," "any Predecessor-in-Interest," "any Third Party," and "identify all Persons having knowledge about the facts described in Your response." ACT objects to this Interrogatory to the extent it seeks information that is in Defendant's possession, custody, or control and/or information that is otherwise readily obtainable and/or publicly available to Defendants with lesser or equal burden to ACT. ACT objects to this

Interrogatory to the extent it seeks information protected by the attorney-client privilege, work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT objects to this Interrogatory to the extent it calls for a legal conclusion. ACT objects to this Interrogatory as compound and containing multiple subparts, each of which counts towards Defendant's total number of Interrogatories because it seeks information for separate and unrelated subject matter.

Subject to and without waiving its General and Specific Objections to this Interrogatory, ACT responds as follows:

ACT incorporates by reference, as if fully set forth herein, its Complaint for Patent Infringement Against Defendants and its Disclosure of Asserted Claims and Infringement Contentions. ACT incorporates by reference, as if fully set forth herein, its forthcoming expert reports on damages and infringement.

ACT incorporates by reference the complaints filed in *Advanced Coding Technologies LLC v. LG Electronics Inc. and LG Electronics U.S.A., Inc.*, Case No. 2:22-cv-00501-JRG-RSP (E.D. Tex.); *Advanced Coding Technologies LLC v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.*, Case No. 2:22-cv-00499-JRG-RSP (E.D. Tex.); and *Advanced Coding Technologies LLC v. Apple, Inc.*, Case No. 2:24-cv-00572 and -00687 (E.D. Tex.).

At this time, ACT has no further responsive information in its possession, custody, or control concerning products that allegedly practice the claimed inventions including any products developed or sold by JVCKenwood.

Discovery in this case is ongoing and ACT continues to investigate this matter. ACT will supplement this response to provide any additional responsive, non-privileged information to the extent such information exists, can be ascertained after a reasonable investigation in accordance

with the Federal Rules of Civil Procedure and any applicable Court order, and is in the possession, custody, or control of ACT.

INTERROGATORY NO. 15

Describe in detail the complete factual basis for Your request for injunctive relief, including without limitation all facts you rely on or will rely on to demonstrate the required legal factors.

RESPONSE TO INTERROGATORY NO. 15

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, seeking information not proportional, particularly to the extent it requests “all facts you rely on.” ACT objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT objects to this Interrogatory to the extent it calls for a legal conclusion. ACT objects to this Interrogatory to the extent it calls for a legal conclusion. ACT objects to this Interrogatory as seeking information that is properly the subject of expert reports before the deadline for such disclosures, and without the benefit of claim construction.

Subject to and without waiving its General and Specific Objections to this Interrogatory, ACT responds as follows:

ACT incorporates by reference, as if fully set forth herein, its Complaint for Patent Infringement Against Defendants and its Disclosure of Asserted Claims and Infringement Contentions. ACT incorporates by reference, as if fully set forth herein, its forthcoming expert reports on damages and infringement.

Discovery in this case is ongoing and ACT continues to investigate this matter. ACT will supplement this response to provide any additional responsive, non-privileged information to the extent such information exists, can be ascertained after a reasonable investigation in accordance

with the Federal Rules of Civil Procedure and any applicable Court order, and is in the possession, custody, or control of ACT.

INTERROGATORY NO. 16

For each defense raised by Google, including without limitation any defense identified in Google's initial disclosures, describe in detail each and every basis on which You disagree with the defense.

RESPONSE TO INTERROGATORY NO. 16

ACT incorporates by reference its General Objections as if fully set forth herein. ACT objects to this Interrogatory as overly broad, unduly burdensome, seeking information not proportional to the needs of the case, particularly to the extent it requests "each and every basis on which You disagree with the defense." ACT objects to this Interrogatory to the extent it seeks information that is in Defendant's possession, custody, or control and/or information that is otherwise readily obtainable and/or publicly available to Defendants with lesser or equal burden to ACT. ACT objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, work-product doctrine, common interest privilege, and/or any other applicable privilege. ACT objects to this Interrogatory to the extent it calls for a legal conclusion. ACT objects to this Interrogatory as seeking information that is properly the subject of expert reports before the deadline for such disclosures, and without the benefit of claim construction.

Subject to and without waiving its General and Specific Objections to this Interrogatory, ACT responds as follows:

Non-Infringement / Lack of Knowledge: ACT incorporates by reference, as if fully set forth herein, its Complaint for Patent Infringement Against Defendants and its Disclosure of Asserted Claims and Infringement Contentions. ACT incorporates by reference, as if fully set forth herein, its forthcoming expert reports on damages and infringement.

Invalidity: ACT incorporates by reference its response to Interrogatory Nos. 2 and 5, and any future supplements thereto. ACT incorporates by reference, as if fully set forth herein, its forthcoming expert reports on validity.

Prosecution History Estoppel: ACT's claims of patent infringement are not barred, in whole or in part, by the doctrine of prosecution history estoppel and ACT is not estopped from claiming that the Patents-in-Suit cover the accused technology or their use. The prosecution history of the Asserted Patents does not support Google's defense. ACT incorporates by reference, as if fully set forth herein, its Complaint for Patent Infringement Against Defendants and its Disclosure of Asserted Claims and Infringement Contentions. ACT incorporates by reference the specifications and File Histories of the Asserted Patents, and prior art cited therein, produced as ACT-GOOGLE00000001-00001673; ACT-GOOGLE00005773-00007891.

Waiver, Acquiescence, Estoppel and Equity: There are no licenses to Google associated with the Asserted Patents. Any licenses to partners or affiliates with Google do not result in ACT's claims being exhausted or support any license defense on the part of Google. that would support Google's defense. Any of "ACT's prior actions [or] omissions with respect to the alleged infringement," "ACT's prior licensing of the Asserted Patents," "ACT's prior communications with third parties," "statements to the United States Patent and Trademark Office," or "the timing of this lawsuit" support Google's defenses of waiver, acquiescence, estoppel, implied license, or other equitable doctrines.

Limitation on Damages / No Enhanced Damages / No Attorney Fees / Limitation on Costs / No Injunction: ACT's request for damages is not barred under 35 U.S.C. §§ 284-288. ACT incorporates by reference, as if fully set forth herein, its Complaint for Patent Infringement Against Defendants and its Disclosure of Asserted Claims and Infringement Contentions. ACT

incorporates by reference, as if fully set forth herein, its forthcoming expert reports on damages and infringement. ACT incorporates by reference its response to Interrogatory Nos. 1, 5, 8-11, and 15 and any future supplements thereto.

Improper Venue: Venue is proper and convenient for Google. ACT incorporates by reference, as if fully set forth herein, its Complaint for Patent Infringement Against Defendant.

Discovery in this case is ongoing and ACT continues to investigate this matter. ACT will supplement this response to provide any additional responsive, non-privileged information to the extent such information exists, can be ascertained after a reasonable investigation in accordance with the Federal Rules of Civil Procedure and any applicable Court order, and is in the possession, custody, or control of ACT.

Dated: November 20, 2024

AS TO OBJECTIONS,

/s/ Peter Lambrianakos

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***ATTORNEYS FOR PLAINTIFF
ADVANCED CODING TECHNOLOGIES, LLC***

CERTIFICATE OF SERVICE

The undersigned hereby certifies that, on November 20, 2024, a true and correct copy of the foregoing document has been served via electronic mail on all counsel of record.

/s/ Peter Lambrianakos
Peter Lambrianakos