UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

ADVANCED CODING TECHNOLOGIES, LLC,
Patent Owner.

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Case IPR2024-00327
Patent 9,986,303

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

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After the Petition in this proceeding was filed, the parties in the co-pending district court litigation stipulated to a construction of "reconstructing video image coding data from the basic video image coding data and the supplementary video image coding data" as "rearranging basic video image coding data with supplementary video image coding data." EX2003, 2. The POPR advances arguments based on the parties' construction, but they fail for multiple reasons.

Section I of this paper first addresses errors in PO's application of the construction, and specifically, PO's erroneous characterizations of "basic" and "supplementary" video image coding data. Section II then addresses how Grounds 1 and 2 of the Petition meet the parties' construction as properly applied.

## I. PO MISCHARACTERIZES BASIC AND SUPPLEMENTARY VIDEO IMAGE CODING DATA IN THE '303 PATENT

PO misapplies the parties' construction by relying on mischaracterizations of "basic video image coding data" and "supplementary video image coding data" as used in the construction and the '303 Patent. PO's arguments thus fail at the outset.

First, PO contends that "'supplementary video image coding data' provides ***separate*** pictures than basic video image coding data pictures," and relatedly, that supplementary video image coding data in the '303 Patent is not "combined" with basic video image coding data to enhance basic picture quality. *E.g.*, POPR, 2, 7-8 (emphasis added). Not so. While the '303 Patent describes certain embodiments

consistent with PO's position, the POPR entirely disregards another embodiment that is flatly inconsistent with this position:

> By transmitting ***a luminance component as basic hierarchical coding data*** and transmitting ***a first color difference component and a second color difference component as supplementary hierarchical coding data***, while viewing a ***monochrome video image*** in real time, video image coding data can be ***reconstructed*** from the basic hierarchical coding data and the supplementary hierarchical coding data after the supplementary hierarchical coding data is received ***so as to view a color video image***. (EX1001, 15:35-48) (cited at Pet., 5)

Here, basic data encodes a "luminance" component of pictures in a video stream and supplementary data encodes a "color difference" component of pictures in the video stream. The luminance component from the basic data is sufficient for viewing the video with lower-quality pictures (i.e., "monochrome") while color information from the supplementary data augments the luminance component for viewing the video with higher-quality pictures (i.e., "view a color video image"). *Id.* Unlike embodiments highlighted in the POPR in which the supplementary data provides pictures that are temporally separate and interleaved with pictures in the basic data to increase the frame rate, the embodiment described at col. 15:35-48 confirms that this type of separation is ***not required*** and supplementary data ***can*** in

fact be applied to improve the quality of pictures in the basic data. PO's position contradicts this embodiment and is improper. *Kaufman v. Microsoft Corp*., 34 F.4th 1360, 1372 (Fed. Cir. 2022) ("A claim construction that excludes a preferred embodiment is rarely, if ever correct"); EX1001, 3:14-17 ("The invention will now be described by reference to the preferred embodiments. This does not [] limit ...").

Second, PO's assertion that "basic video image coding data corresponds to a higher quality and higher transmission rate than supplementary video image coding data" is similarly inconsistent with descriptions in the '303 Patent. The specification explains that ***supplementary*** data is transmitted when the transmission rate is ***higher*** than necessary for transmission of basic data, and thus PO's assertion that basic data necessarily corresponds to a higher transmission rate cannot be correct. *See, e.g.*, EX1001, 4:39-42, 9:3-7, 11:56-60, FIG. 5. The monochrome/color embodiment at col. 15:35-48 also shows that basic video image coding data does not necessarily correspond to "higher quality" pictures since the supplementary data is used to produce higher-quality color pictures. *Id.*, 15:35-58.

Third, PO's arguments are inconsistent with the Examiner's understanding of basic and supplementary video image coding data during prosecution. PO never disputed the Examiner's repeated mapping of the Van Der Schaar reference's (US6697426) base/enhancement layers in a scalable coding system to the claimed layers similar to the mappings in the Petition. EX1002, 89-90, 109-110, 127-128.

Even if PO's characterizations were valid (which they are not), Demircin and Kimoto would still meet the claims since they both describe "temporal scalability" for increasing the video's frame rate by inserting temporally separate supplemental pictures much like the embodiments cited in the POPR. Pet., 9-10, 18, 24, 40-42, 62-63, 66. Further, under a proper application of the construction, Demircin's basic/enhancement layers and Kimoto's lower/upper layers fully align with the descriptions of basic/supplementary data in the '303 Patent—even when those layers are used for "SNR" or spatial scalability. Pet., 10, 41, 62, 66.

## II. THE PETITION'S PRIOR ART GROUNDS SATISFY THE PARTIES' CONSTRUCTION

### A. Ground 1: Demircin

PO argues that "[t]he specification of the '303 Patent [] provides intuitive support that the claimed 'reconstructing' is 'rearranging' because the supplementary hierarchical pictures are received out of order in the sense that they are received in an order other than their display and decoding order with respect to the basic video image coding data." POPR, 15. Applying this same reasoning to Demircin, it is intuitive that Demircin also rearranges base layer data (***basic video image coding data***) with enhancement layer data (***supplementary video image coding data***). The Petition cited Demircin's disclosure of "Delayed NAL Unit Transmission" in which the transmission of enhancement layer data for frames in a video sequence are delayed relative to the base layer data for those frames. Pet.,

42-43. As the Petition explained with respect to [1.5.1]-[1.5.2], [1.6], and [1.7], Demircin's enhancement layer pictures are received out of order in substantially the same manner described in the '303 Patent, thus requiring the receiver to store base layer pictures earlier received and to rearrange the order of the base layer pictures with the enhancement layer pictures to compensate for the delayed transmission of enhancement layer NAL units. Pet., 42-45, 33-40.

### B. Ground 2: Kimoto in view of Demircin

Kimoto's disclosure of rearranging lower layer data (***basic video image coding data***) with upper layer data (***supplementary video image coding data***) is similarly intuitive. As discussed in the Petition, in Kimoto, the lower layer data is received (and is stored locally) earlier in time than upper layer data. Pet., 52, 56, 61, 65, 72-73 (citing Kimoto [0025], [0044], [0067]-[0070]). The lower layer data can be used by itself to reproduce a video with low quality contents, just like the claimed basic video image coding data. Pet, 61-62; Kimoto, [0041]-[0042]. When the upper layer data is received, the hierarchical data synthesizing unit synthesizes the upper layer first data with a corresponding part of the lower layer data stored in memory. Pet., 52, 61, 65, 72-73. Because of the difference in arrival times of the upper layer data compared to the lower layer data, the synthesizing of the upper layer data with a corresponding part of the lower layer data naturally requires a rearranging of the upper and lower layer data to realign the data.

Respectfully submitted,

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## CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4) and 42.205(b), the undersigned certifies that on June 24, 2024, a complete and entire copy of this Petitioner's Reply to Patent Owner's Preliminary Response was provided by email to the Patent Owner by serving the correspondence address of record as follows:

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