

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., AND  
SAMSUNG ELECTRONICS AMERICA, INC.,  
Petitioner,

v.

CELLECT, LLC,  
Patent Owner.

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Case IPR2020-00512  
U.S. Patent No. 9,186,052

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**PATENT OWNER'S SUR-REPLY TO § 325(d) ARGUMENTS**

Petitioner's Reply treats the asserted references completely out of context and ignores the specification of the '052 Patent that expressly explains the state of the imager art. Petitioner never challenges the fact that, at the time of the invention, CCD imagers were the dominant technology and had several distinct characteristics, including a CCD pixel array separate from the other components of the device, such as timing and control and image processing. *See, e.g.*, Ex. 1001 at 1:40-4:2. CMOS imager technology was emerging rapidly at the same time and featured its own distinct characteristics: lower power, smaller size and on-chip integration. *See, e.g., id.* at 1:66-2:19. Ignoring this context completely, the Reply treats CCD and CMOS technologies as interchangeable modules – which they are not. Reply at 1-2.

Moreover, recognition of new benefits available by leveraging CMOS technology was a key contribution to the art by PO, based in Denver, Colorado with a long history of innovation. Dr. Edwin Adair, a Denver physician and an inventor of the '052, made numerous developments in medical devices, including endoscopes, and beginning in 1973, began obtaining patents that ultimately led to his work with reduced area imaging devices using CMOS image sensors. PO developed a portfolio covering its endoscope and reduced area imaging device technology, which it has successfully licensed. The '052 generally relates to imaging devices where the image sensor and image processor components can be separated and arranged as desired so that various components can be in separate planes, and thus the layout of a device

can be customized, including designing smaller and thinner devices.

Using the claim as a model, Petitioner's Reply is rife with hindsight bias, evidenced by Petitioner's mixing and matching of incompatible CCD and CMOS features already considered. For example, Petitioner views Swift as teaching reconstruction of a camera-on-a-chip Fossum CMOS sensor to have an off-chip image processor, while Swift is completely silent on any such modification, particularly in light of PO's claim that requires a CMOS imager configured exactly that way. POPR at 22-25. This interpretation is irreconcilable with the state of the art. The Federal Circuit has long warned against "using the claims 'as a frame,' and taking the 'naked parts of separate prior art references as a mosaic.'" *Knauf Insulation, Inc. v. Rockwool Int'l A/S*, 788 F. App'x 728, 732 (Fed. Cir. 2019); *see also Mintz v. Dietz & Watson*, 679 F.3d 1372, 1378-80 (Fed. Cir. 2012).

Similarly, the Reply violates another well-established doctrine that "a reference is cumulative when it teaches no more than what a reasonable examiner would consider to be taught by the prior art already before the PTO." *Regeneron Pharm., Inc. v. Merus N.V.*, 864 F.3d 1343, 1350 (Fed. Cir. 2017). In particular, Petitioner's Reply fails to rebut the significant overlap of references in the Petition and the prosecution history. For example, PO explained that Swift describes two possible configurations — CMOS or CCD. POPR at 22-25. Both configurations employed conventional imager chip designs already considered and overcome. Moreover, given

Swift's complete lack of implementation details to achieve a CMOS implementation with separate, off-chip processing, PO explained how a PHOSITA would understand Swift's express reference to Fossum's camera-on-a-chip design—rendering superfluous the separate video processing board, that would instead relate to a CCD device design which was common at the time. *See* Ex. 1003 at 83-89 (Adair Decl.), 91-95 (Baird Decl.). This is further reinforced by the fact that security cameras (Swift's field of art) were still using CCD imagers in 1994 and well into 2007. *See* Ex. 2036 at 224. Similarly, in view of the state of the imager art and its design, including how remote its circuitry is from its imager, a POSITA would understand that Suzuki is a CCD imager. POPR at 8-9. Petitioner fails to respond to, much less rebut, these facts.

Petitioner, incredibly, attempts to argue that Swift does not use a Fossum sensor, notwithstanding the express reference to Fossum in Swift. Reply at 6. The reason for this is evident—Fossum's CMOS APS was expressly intended for use in a camera-on-a-chip configuration featuring on-chip integration. *See, e.g.,* Ex. 2004. Petitioner's reliance on Swift's passing reference to Fossum's CMOS sensor, with no support or explanation to modify it, is inconsistent with the camera-on-a-chip design for CMOS at the time, and makes no sense. Regardless of whether Swift is understood as a CMOS or CCD imager, it is completely cumulative to the art of record. POPR at 16-21. Swift's CMOS option overlaps with Fossum's CMOS imager design, and Swift's CCD option overlaps with Pelchy/Danna/Yarush. *Id.* at 22-28.

Petitioner now concedes that Ricquier describes on-chip latches and decoders for controlling the release of image signals from the pixel array. Reply at 8. Latches and decoders are critical components for controlling the release of image information from the array of pixels, and Petitioner's arguments that timing and control means is limited to the clock signal, *i.e.*, timing, is wrong for multiple reasons. The claim term itself refers to both timing *and control*. Further, the '052 Patent explicitly states that "[t]he *information released* from the column or columns *is also controlled* by a series of latches 102, a counter 104 and a decoder 106." Ex. 1001 ('052) at 13:33-53; *see id.* 13:6-10. Thus, Petitioner's argument that only control circuit 92 is required is wrong and contradicted by the specification that explicitly states that latches, counters and decoders are necessary.

Because the Challenged Claims require "timing *and control* means" and not just timing circuitry, Petitioner cannot ignore the fact that the control circuitry in Ricquier was on-chip, similar to Zarnowski as described in the POPR (at 31-35). Further, Petitioner fails to address that Ricquier was a bench-testing device and had an external clock used only for development purposes. Ex. 1033 at 10-11. Ricquier expressly teaches the goal of placing all components on-chip post-development, teaching away from designing off-chip timing and control circuitry and is silent about control circuitry. *Id.* at 11.

Further, Petitioner notes that PO failed to meet the size limitation. Reply at 1.

This limitation was added during prosecution to overcome a obviousness-type double patenting rejection over the '565 Patent. Ex. 1002 at 145. This claim limitation fails to address the fact that Suzuki is cumulative to the art of record.

Although Petitioner argues that the scope of the art of record was limited (Reply at 4), the totality of the prosecution history, including declarations from Adair and Baird, address at least the following issues: CCD devices would not be combined with Fossum's CMOS sensor; CCD devices would not be manufactured on a single plane; and a hallmark of CMOS sensors was on-chip integration. Ex. 1003 at 92-95. Further, the prosecution history thoroughly dealt with CCD references like Pelchy and Danna, which made passing references to CMOS, but only described CCD sensors with separate circuit boards for off-chip circuitry. *Id.* at 100-18. Here again, it was argued during prosecution that these references could not be combined with Zarnowski or other CMOS sensors. *Id.* at 137-45.

Petitioner's argument regarding Swift and combinations with Ricquier are substantially the same as were made during prosecution. Namely, at best, Swift is a conventional CMOS imager, like Zarnowski, which Petitioner seeks to combine with the conventional CMOS imager of Ricquier, which is also similar to Zarnowski.

Petitioner also cherry picks Ricquier's CMOS features to implement the CCD architecture of Swift and Suzuki. Reply at 7-8. Similar CCD-CMOS obviousness combinations were made during prosecution.

Respectfully submitted,

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**CERTIFICATE OF SERVICE**

The undersigned certifies, in accordance with 37 C.F.R. § 42.6(e), that service was made on the Petitioner as detailed below.

*Date of service*      June 29, 2020

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*Documents served*    PATENT OWNER'S SURREPLY TO § 325(d) ARGUMENTS

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