

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 IPR2020-00472  
U.S. Patent No. 6,043,839

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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 '839 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 1:15-3:45. CMOS imager technology was emerging rapidly at the same time, led by Eric Fossum, and featured its own distinct characteristics: lower power, smaller size and on-chip integration. *See, e.g., id.* at 1:41-62. Ignoring this context completely, the Reply treats CCD and CMOS technologies as interchangeable – which they are not.

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 '839 Patent, made numerous developments in medical devices, 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 '839 Patent generally relates to imaging devices where the image sensor and image processor components can be separated and arranged in separate planes so the layout can be customized to design 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 claims that require a CMOS imager configured exactly that way. POPR at 17-19. This interpretation is contrary to 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). Petitioner's Reply fails to heed that warning.

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. Both configurations employed conventional imager chip designs already considered and overcome. Ex. 1003 at 170-71. Moreover, given Swift's complete lack of implementation details to achieve a CMOS implementation

with separate, off-chip processing, PO explained how a POSITA 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 into 2007. *See* Ex. 2036 at 224. Similarly, in view of the state of the art and its design, including remote circuitry is from its imager, a POSITA would understand that Suzuki is a CCD imager. POPR at 24-25. 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 4. 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. Regardless of whether Swift is understood as a CMOS or CCD imager, however, it is completely cumulative to the art of record. *See* POPR at 16-21. Swift overlaps with Fossum's CMOS imager design for its CMOS option, and Swift overlaps with Pelchy/Danna for its CCD option. *Id.*

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 '742 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 are required is contradicted by the specification.

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 POPR (at 31-35). Further, Petitioner fails to address that Ricquier was a bench-testing device and an external clock used only for development purposes. Ex. 1033 at 10-11. Ricquier expressly teaches placing all components on-chip post-development, teaching away from off-chip timing and control circuitry, and says nothing about control circuitry. *Id.* at 11.

Although Petitioner argues that the scope of the art of record was limited (Reply at 2), 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. 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 a Swift and Ackland combination are substantially the same as combination 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 Ackland, also similar to Zarnowski. POPR at 21-22.

Petitioner also cherry picks Ackland's CMOS features and attempts to implement them into the traditional CCD architecture of Swift and Suzuki. Reply at 1, 2, 5. As noted above, similar CCD-CMOS obviousness combinations were made during prosecution. These combinations did not work then, and do not work now.

At least for the foregoing reasons, the Board should exercise its discretion to deny instituting *inter partes* review of the Challenged Claims.

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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