

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
23 April 2020 (23.04.2020)



(10) International Publication Number
WO 2020/081951 A1

(51) International Patent Classification:

H04N 19/70 (2014.01) H04N 19/176 (2014.01)
H04N 19/122 (2014.01) H04N 19/18 (2014.01)
H04N 19/132 (2014.01) H04N 19/91 (2014.01)

(21) International Application Number:

PCT/US2019/056966

(22) International Filing Date:

18 October 2019 (18.10.2019)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/747,543	18 October 2018 (18.10.2018)	US
62/786,285	28 December 2018 (28.12.2018)	US
62/788,546	04 January 2019 (04.01.2019)	US
62/792,795	15 January 2019 (15.01.2019)	US
16/655,950	17 October 2019 (17.10.2019)	US

(71) Applicant: **QUALCOMM INCORPORATED** [US/US];
ATTN: International IP Administration, 5775 Morehouse
Drive, San Diego, California 92121-1714 (US).

(72) Inventors: **KARCZEWICZ, Marta**; 5775 Morehouse
Drive, San Diego, California 92121-1714 (US). **COBAN,**

Muhammed Zeyd; 5775 Morehouse Drive, San Diego,
California 92121-1714 (US).

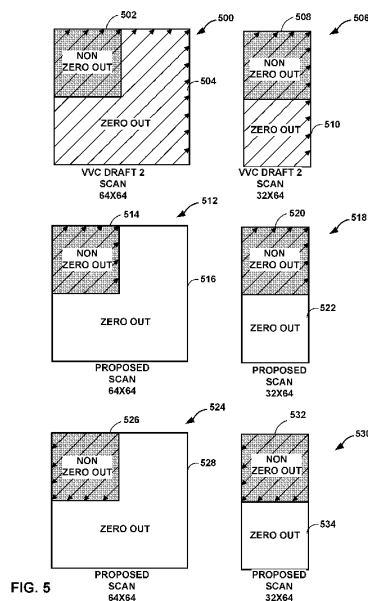
(74) Agent: **EVANS, Matthew J.**; Shumaker & Sieffert, P.A.,
1625 Radio Drive, Suite 100, Woodbury, Minnesota 55125
(US).

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP,
KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME,
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,
SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,

(54) Title: SCANS AND LAST COEFFICIENT POSITION CODING FOR ZERO-OUT TRANSFORMS

(57) Abstract: A method of decoding video data including determining a first region of a transform unit in which transform coefficients are subject to zero-out, determining a second region of the transform unit in which transform coefficients are not subject to zero-out, and scanning only the second region of the transform unit.



WO 2020/081951 A1

[Continued on next page]

TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*