



(51) International Patent Classification:
H04W 74/08 (2009.01)

(21) International Application Number:
PCT/US2017/048353

(22) International Filing Date:
24 August 2017 (24.08.2017)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
62/398,273 22 September 2016 (22.09.2016) US
15/684,898 23 August 2017 (23.08.2017) US

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

(72) Inventors: **TIAN, Qingjiang**; 5775 Morehouse Drive, San
Diego, California 92121-1714 (US). **BARRIAC, Gwen-**
dolyn Denise; 5775 Morehouse Drive, San Diego, Cal-
ifornia 92121-1714 (US). **PATIL, Abhishek Pramod**;
5775 Morehouse Drive, San Diego, California 92121-1714
(US). **ZHOU, Yan**; 5775 Morehouse Drive, San Diego,
California 92121-1714 (US). **CHERIAN, George**; 5775
Morehouse Drive, San Diego, California 92121-1714 (US).

ASTERJADHI, Alfred; 5775 Morehouse Drive, San
Diego, California 92121-1714 (US). **MERLIN, Simone**;
5775 Morehouse Drive, San Diego, California 92121-1714
(US).

(74) Agent: **SCHRAMM, Paul, M.**; Holland & Hart LLP, P.O.
Box 11583, Salt Lake City, Utah 84147 (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: IMPROVING TRANSMISSION OPPORTUNITY TRUNCATION

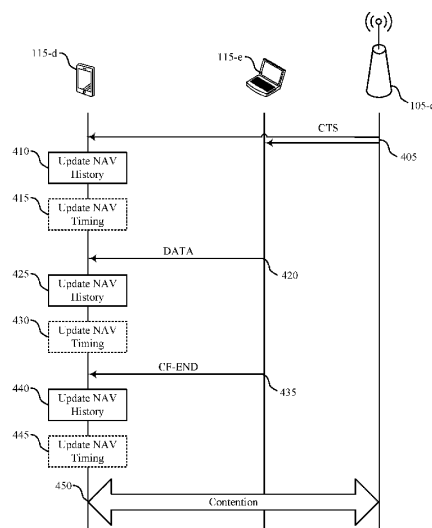


FIG. 4

(57) Abstract: This disclosure provides systems, methods, and apparatus, in-
cluding computer programs encoded on computer storage media, for improv-
ing transmission opportunity (TxOP) truncation in wireless communication.
In some implementations, a transmit opportunity (TxOP) period truncation or
whether to update a network allocation vector (NAV) timing based on a mes-
sage that includes transmitter and receiver information (such as a transmitter
address (TA) and a receiver address (RA)) may be determined. For example,
a station may receive a contention-free end (CF-End) frame and determine a
TxOP period truncation based on comparing a TA and an RA included in the
CF-End frame with a TA and an RA included in an earlier received message
(e.g., an RTS). Such information may be compared to other TAs or RAs asso-
ciated with NAV timing values and the NAV timing may be set, reset, updated,
or canceled based on the comparison.

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))*