



- (51) **International Patent Classification:**
H04W 76/19 (2018.01) *H04L 29/06* (2006.01)
H04W 12/10 (2009.01)
- (21) **International Application Number:**
PCT/US2017/058947
- (22) **International Filing Date:**
30 October 2017 (30.10.2017)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
62/417,931 04 November 2016 (04.11.2016) US
15/443,981 27 February 2017 (27.02.2017) US
- (71) **Applicant:** QUALCOMM INCORPORATED [US/US];
ATTN: International IP Administration, 5775 Morehouse
Drive, San Diego, California 92121-1714 (US).
- (72) **Inventors:** ESCOTT, Adrian Edward; 5775 Morehouse
Drive, San Diego, California 92121-1714 (US). DHANDA,
Mungal Singh; 5775 Morehouse Drive, San Diego, Califor-
nia 92121-1714 (US). PALANIGOUNDER, Anand; 5775
Morehouse Drive, San Diego, California 92121-1714 (US).
LEE, Soo Bum; 5775 Morehouse Drive, San Diego, Cali-
fornia 92121-1714 (US).
- (74) **Agent:** LOZA, Julio; Loza & Loza, LLP, 305 N. Second
Avenue, #127, Upland, California 91786-6064 (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,

(54) **Title:** METHOD AND APPARATUS FOR REESTABLISHING RADIO COMMUNICATION LINKS DUE TO RADIO LINK FAILURE

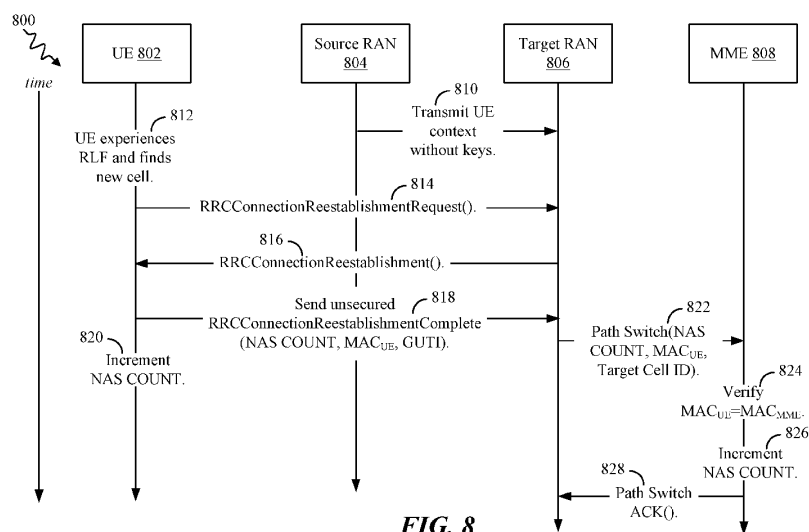


FIG. 8

(57) **Abstract:** One feature pertains to a method that includes establishing a radio communication connection with a first radio access node (RAN) that uses control plane signaling connections to carry user plane data. The method also includes determining that the wireless communication device is experiencing radio link failure (RLF) with the first RAN and that the radio communication connection should be reestablished with a second RAN. A reestablishment request message is transmitted to the second RAN that includes parameters that enable a core network node communicatively coupled to the second RAN to authenticate the wireless communication device and allow or reject reestablishment of the radio communication connection. The parameters include at least a message authentication code (MAC) based in part on one or more bits of a non-access stratum (NAS) COUNT value maintained at the wireless communication device.

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

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

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