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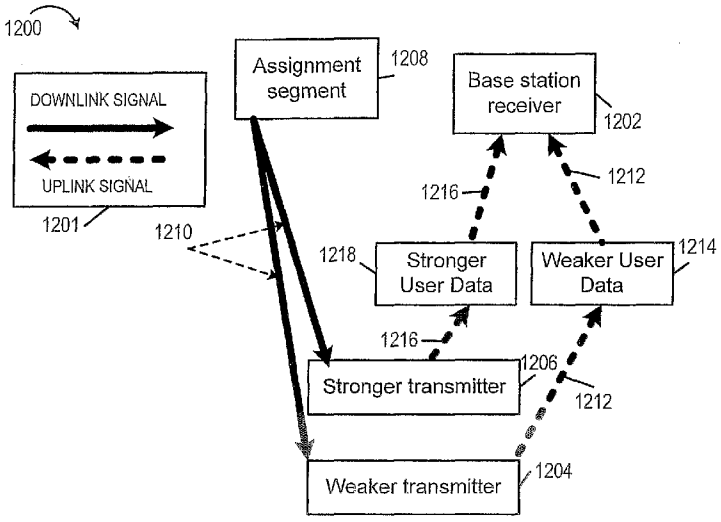
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[Continued on next page]

(54) Title: CONTROLLED SUPERPOSITION CODING IN MULTI-USER COMMUNICATION SYSTEMS



(57) Abstract: Methods of using superposition coding in a communications systems, e.g., a multi-user communications system. Superpostion coding in accordance with the invention occurs in the case of an uplink by transmissions of different wireless terminals transmitting using the same communications resource, e.g., simultaneously transmitting using the same frequencies. The signals combine in the communications channel resulting in one transmission being superimposed on the other transmission. The device, e.g., base station, receiving the superimposed signals uses superposition decoding techniques to recover both signals. To obtain the benefit of the superposition, assignments of channel segments to multiple wireless terminals is controlled by the base station and/or transmission power levels are controlled by on or more wireless terminals sharing the same uplink communications resource, e.g., time slot, to make sure that the received signals from the different devices will have different received power levels making superposition decoding possible.

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Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*

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