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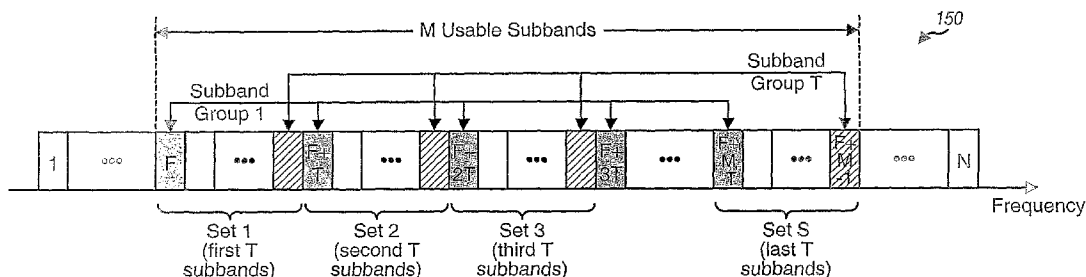
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- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, 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)
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

[Continued on next page]

(54) Title: TRANSMISSION SCHEMES FOR MULTI-ANTENNA COMMUNICATION SYSTEMS UTILIZING MULTI-CARRIER MODULATION



(57) Abstract: Pilot and data transmission schemes for multi-antenna communication systems utilizing multi-carrier modulation are provided. Subband multiplexing is used to avoid interference resulting from transmitting multiple signals simultaneously from multiple antennas. M usable subbands are initially arranged to form multiple groups of subbands, with each group including a different subset of the usable subbands. Each of T transmit antennas is then assigned one or possibly more subband groups for pilot transmission and typically one subband group for data transmission. Pilot and data may then be transmitted from each antenna on the subbands assigned to that antenna for pilot and data transmission. For each transmit antenna, the transmit power for each assigned subband may be scaled higher such that all of the total transmit power available for the antenna is used for transmission. Pilot and/or data may be transmitted simultaneously from all T antennas on all usable subbands without causing mutual interference.

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