

(51) International Patent Classification:
G01R 1/00 (2006.01)(21) International Application Number:
PCT/US2009/052133(22) International Filing Date:
29 July 2009 (29.07.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
12/200,764 28 August 2008 (28.08.2008) US(71) Applicant (for all designated States except US): **QUALI-TAU, INC.** [US/US]; 950 Benecia Avenue, Sunnyvale, California 94085 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BORTHWICK, James** [CA/US]; 1220 Tasman Drive, #526, Sunnyvale, California 94089 (US). **CUEVAS, Peter, P.** [US/US]; 114 Elena Way, Los Gatos, California 95032 (US). **RAICHMAN, Tal** [IL/US]; 149 Beacon Street, San Francisco, California 94131 (US).(74) Agents: **HODES, Alan, S.** et al.; Beyer Law Group Llp, P.O. Box 1687, Cupertino, California 95015-1687 (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, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

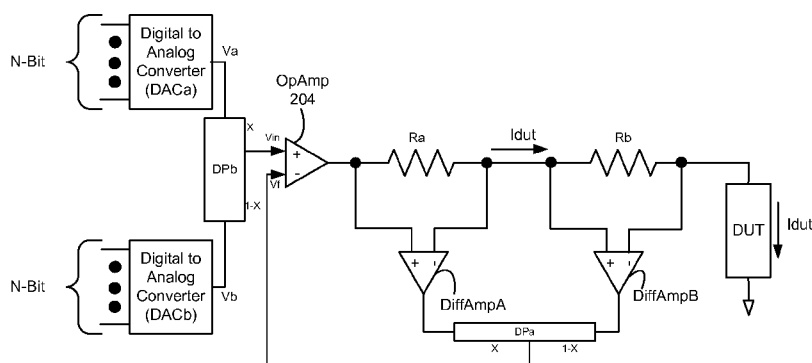
Declarations under Rule 4.17:

— 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))

(54) Title: MODIFIED CURRENT SOURCE (MCS) WITH SEAMLESS RANGE SWITCHING

**Fig. 2**

(57) Abstract: A current source is provided with two resistor banks, and digital potentiometers are used to control how much each resistor bank affects the resulting output current. Furthermore, when the digital potentiometers are at a particular setting such that a particular resistor bank does not affect the resulting output current (i.e., the resistor bank is "inactive"), the resistance of that resistor bank can be switched without affecting the output current, thus minimizing or eliminating discontinuities in the output current during a current sweep operation. Thus, for example, when a resistor bank meets its threshold and becomes inactive, the resistance of the inactive resistor bank may be switched, and then the digital potentiometer setting may be changed to facilitate smoothly reactivating that resistor bank, with the new resistance.