

(51) International Patent Classification:
H03D 3/00 (2006.01)(21) International Application Number:
PCT/IB2011/052517(22) International Filing Date:
9 June 2011 (09.06.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
204983 11 April 2010 (11.04.2010) IL(71) Applicant (for all designated States except US): **ELTA SYSTEMS LTD.** [IL/IL]; 100 Yitzhak Hanassi Blvd. P.O.B. 330, Order No. 91483, 77102 Ashdod (IL).

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(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, 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, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report (Rule 48.2(g))

— with information concerning request for restoration of the right of priority in respect of one or more priority claims (Rules 26bis.3 and 48.2(b)(vii))

(54) Title: METHOD AND SYSTEM FOR PERFORMING COMPLEX SAMPLING OF SIGNALS BY USING TWO OR MORE SAMPLING CHANNELS AND FOR CALCULATING TIME DELAYS BETWEEN THESE CHANNELS

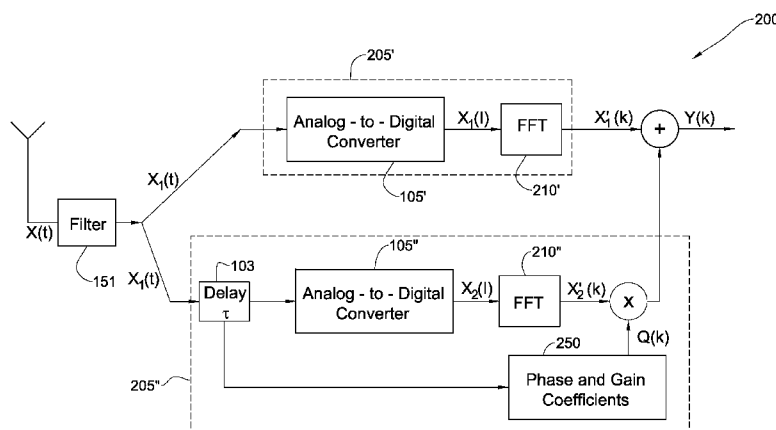


FIG. 2

(57) **Abstract:** A method and system for performing complex sampling of signals by using two or more sampling channels and for calculating time delays between these channels. According to certain embodiments of the presently disclosed subject matter, the system and method are operable to enable a complex sampling of a signal in a frequency-domain by means of a predefined-order sampling, including utilizing a sampling channel for converting an analog signal to a corresponding substantially non-delayed digital signal; and transforming the digital signal to a plurality of corresponding frequency-domain substantially non-delayed discrete components; providing one or more additional sampling channels enabling to perform a predefined-order sampling, the predefined-order depending on a number of the one or more additional sampling channels, each additional sampling channel configured to perform a number of stage, giving rise to the multiplied frequency-domain delayed discrete components; and combining the multiplied frequency-domain delayed discrete components with the corresponding frequency-domain substantially non-delayed discrete components, giving rise to an output frequency-domain complex signal.