



- (51) International Patent Classification:  
*H03D 1/04* (2006.01)
- (21) International Application Number:  
PCT/US2012/027055
- (22) International Filing Date:  
29 February 2012 (29.02.2012)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
61/448,720 3 March 2011 (03.03.2011) US
- (71) Applicant (for all designated States except US): **THOMSON LICENSING** [FR/FR]; 1-5 rue Jeanne d'Arc, 92130 ISSY LES MOULINEAUX (FR).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **WHITE, David Glen** [US/US]; 5925 Linton Lane, Indianapolis, Indiana 46060 (US).
- (74) Agents: **SHEDD, Robert, D.** et al.; Thomson Licensing LLC, 2 Independence Way, Suite #200, Princeton, New Jersey 08540 (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, QA, RO, RS, RU, RW, 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, 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).

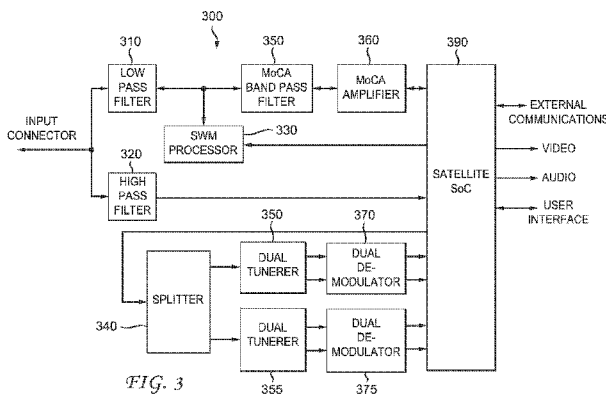
**Published:**

— with international search report (Art. 21(3))

(88) Date of publication of the international search report:  
17 April 2014

WO 2012/118874 A3

(54) Title: APPARATUS AND METHOD FOR PROCESSING A RADIO FREQUENCY SIGNAL



(57) Abstract: Many advanced signal receiving devices include more than one tuner. An apparatus (500) is described that includes a first circuit (510, 520, 530) operating as a first portion of a signal attenuator, a second circuit (540, 550, 560) operating as a second portion of the signal attenuator and outputting a first differential output signal, and a third circuit (535, 545, 570) also operating as the second portion of the signal attenuator and outputting a second differential output signal. A method (600) is described including receiving a signal (610), splitting the received signal (630) to produce a first output signal and a second output signal, the splitting being performed using a differential signal format and further being performed using only at least one of a resistor, capacitor, and inductor, and outputting (640) the first output signal in a differential signal format and the second output signal in a differential signal format.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/27055

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(8) - H03D 1/04 (2012.01) USPC - 375/346 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) USPC: 375/346 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC: 375/316, 318, 346 (keyword limited - see terms below) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PubWEST (PGPB, USPT, EPAB, JPAB), Google.com, GoogleScholar; Search terms: satellite, tuner, television, receiver, video, audio, signal level, attenuation, differential, split, divide, unbalanced, resistive, shunt, cross-talk, interference		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — Y	US 2009/0273401 A1 (Fanous et al.) 05 November 2009 (05.11.2009), entire document, especially; para. [0005], [0048]-[0055], Fig. 2, 5A, 5B, 6	1-8, 10-16, 18 ----- 9, 17
Y	US 2009/0254955 A1 (Petruzzelli) 08 October 2009 (08.10.2009), para. [0045], [0084]	9, 17
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 22 May 2012 (22.05.2012)		Date of mailing of the international search report <b>08 JUN 2012</b>
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201		Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774