

Title (en)  
Digital speaker with enhanced performance

Title (de)  
Digitaler Lautsprecher mit verbesserter Leistung

Title (fr)  
Haut-parleur digital a performance ameliorée

Publication  
**EP 2663091 A1 20131113 (FR)**

Application  
**EP 13166609 A 20130506**

Priority  
FR 1254172 A 20120507

Abstract (en)  
The loudspeaker has a set of membranes i.e. speaklets (4) suspended on a support (2), where the speaklets are bistable. An actuator is provided for each of the speaklets, so as to change each of the speaklets from a stable state to another stable state and vice-versa, where the actuator is one of a piezoelectric actuator or a thermal actuator. A controller is provided to control the actuator, where the controller sends a re-initialization signal to the speaklets before sending a control signal. An independent claim is also included for a method for making a loudspeaker.

Abstract (fr)  
Haut-parleur digital comportant un support (2), une pluralité de première membranes (4) suspendues sur le support (2), lesdites premières membranes (4) étant bistables, et ledit haut-parleur comportant des moyens d'actionnement (6) de chacune des premières membranes aptes à faire passer chacune des premières membranes (4) d'un premier état stable à un deuxième état stable et inversement et des moyens de commande desdits moyens d'actionnement (6).

IPC 8 full level  
**H04R 1/00** (2006.01); **H04R 1/02** (2006.01)

CPC (source: EP US)  
**H04R 1/005** (2013.01 - EP US); **H04R 1/02** (2013.01 - US); **H04R 1/406** (2013.01 - US); **H04R 17/00** (2013.01 - US)

Citation (applicant)  
• WO 2011005198 A1 20110113 - MILUX HOLDING SA [LU], et al  
• WO 2007135680 A1 20071129 - AUDIO PIXELS LTD [IL], et al

Citation (search report)  
• [A] EP 1206160 A1 20020515 - TEXAS INSTRUMENTS INC [US], et al  
• [AD] WO 2007135680 A1 20071129 - AUDIO PIXELS LTD [IL], et al

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

DOCDB simple family (publication)  
**EP 2663091 A1 20131113**; **EP 2663091 B1 20150930**; FR 2990320 A1 20131108; FR 2990320 B1 20140606; US 2013294636 A1 20131107; US 9282385 B2 20160308

DOCDB simple family (application)  
**EP 13166609 A 20130506**; FR 1254172 A 20120507; US 201313887707 A 20130506