



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H04M 11/04		A1	(11) International Publication Number: WO 99/57878
		(43) International Publication Date: 11 November 1999 (11.11.99)	
(21) International Application Number: PCT/US99/09913 (22) International Filing Date: 7 May 1999 (07.05.99) (30) Priority Data: 09/074,107 7 May 1998 (07.05.98) US (63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application US 09/074,107 (CON) Filed on 7 May 1998 (07.05.98) (71) Applicant (for all designated States except US): MEDIA FUSION CORP. [US/US]; Suite 711, MS-288, 6757 Arapaho, Dallas, TX 75248 (US). (72) Inventor; and (75) Inventor/Applicant (for US only): STEWART, William, L. [US/US]; 14919 Cypress Hills Drive, Dallas, TX 75248 (US). (74) Agent: LANCASTER, Robert, G.; Bryan Cave LLP, One Metropolitan Square, Suite 3600, 211 North Broadway, St. Louis, MO 63102-2750 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	

(54) Title: **MAGNETIC FIELD BASED POWER TRANSMISSION LINE COMMUNICATION METHOD AND SYSTEM**

(57) Abstract

A method and system for communicating information between subscribers (20, 22, 24) over power lines (26) where the information is transmitted in the magnetic field component of the electromagnetic radiation carried over the power line (26) and the field is excited by a MASER (50) in order to enable communication between the subscribers (20, 22, 24) at the various electrical sites. The MASER (50) provides an inverted atomic population by pumping directly, through a Q-switch (58) and a synthetic aperture lens (60), into the atomic population of the electromagnetic wave carried over the power line (26) to produce acoustic wave oscillation at the appropriate atomic transition frequency. The MASER (50) output is transmitted within the existing magnetic flux envelope created by the magnetic field and the power line (26) acts as a magnetic waveguide for the coherent magnetic frame emission from the MASER (50). Inductive coupling is used to receive the transmitted information.

