

Title (en)
Electronic multibeam sweep antenna

Title (de)
Elektronische Mehrfachrichtstrahlantenne mit Abtastung

Title (fr)
Antenne à balayage électronique à multifaisceaux

Publication
EP 0952624 A1 19991027 (FR)

Application
EP 99400963 A 19990420

Priority
FR 9805182 A 19980424

Abstract (en)
The system uses addition of components of successive orders to determine dephasing required for operation. The aerial comprises an array of dephasers (2, Dij), with N simultaneous beams being obtained in N directions by an excitation law (fij) applied to each dephaser (Dij). The excitation law is calculated by summing the phase laws (phi 1, phi 2 ... phi N) associated with each direction of order 1,2,... N, and by applying the resulting phase shift (SIMILAR ftij) to the dephaser, without applying the resultant amplitude modulation (SIMILAR pij). The frequencies of the beams used are different. The phase laws (SIMILAR f1, SIMILAR f2 ... SIMILAR fN) may each be affected by a weighting coefficient (r1, r2 ...rN). The weighting coefficients are determined to obtain a sum channel and a difference channel in two different directions.

Abstract (fr)
L'invention concerne une antenne à balayage électronique à multifaisceaux. L'antenne comportant un réseau de déphaseurs (2, Dij) , les N faisceaux simultanés sont obtenus dans N directions par une loi d'excitation (fij) appliquée à chaque déphaseur (Dij) qui est calculée en sommant les lois de phases $\psi_1, \psi_2, \dots, \psi_k, \dots, \psi_N$ associées respectivement à chaque direction d'ordre 1, 2,...k, ...N et en appliquant le déphasage résultant (ψ_{tij}) sur le déphaseur, sans appliquer la modulation d'amplitude résultante (pij). Application : notamment antennes à commande de phase uniquement dans le cadre de communications par satellites ou terrestres nécessitant une communication simultanée avec plusieurs sites variables.
<IMAGE>

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IPC 8 full level
H01Q 19/00 (2006.01); **H01Q 3/26** (2006.01); **H01Q 3/46** (2006.01); **H01Q 25/04** (2006.01)

CPC (source: EP US)
H01Q 3/46 (2013.01 - EP US)

Citation (search report)

- [A] US 5706012 A 19980106 - KAY JOHN H [US]
- [YA] GUO Y J ET AL: "PHASE EFFICIENCY OF THE REFLECTIVE ARRAY ANTENNA", IEE PROCEEDINGS: MICROWAVES, ANTENNAS AND PROPAGATION, vol. 142, no. 2, 1 April 1995 (1995-04-01), pages 115 - 120, XP000523503
- [Y] E. HECHT: "Optics", 1987, ADDISON-WESLEY, USA, XP002090007
- [Y] SHIBAN K. KOUL: "Microwave and millimeter wave phase shifters volume 1", 1991, ARTECH HOUSE, USA, XP002090015
- [A] BERNARD GROB: "grob basic electronics", 1992, MC GRAW HILL, USA, XP002090009
- [A] JAVOR R D ET AL: "BEAM STEERING OF A MICROSTRIP FLAT REFLECTARRAY ANTENNA", DIGEST OF THE ANTENNAS AND PROPAGATION SOCIETY INTERNATIONAL SYMPOSIUM, SEATTLE, WA., JUNE 19 - 24, 1994, vol. 2, 19 June 1994 (1994-06-19), INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, pages 956 - 959, XP000545575

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