

Title (en)
EQUATORIALLY AND NEAR-EQUATORIALLY RADIATING ARC-SHAPED POLARIZATION CURRENT ANTENNAS AND RELATED METHODS

Title (de)
ÄQUATORIAL UND NAHEZU ÄQUATORIAL STRAHLENDE BOGENFÖRMIGE POLARISATIONSTROMANTENNEN UND ENTSPRECHENDE VERFAHREN

Title (fr)
ANTENNES DE COURANT DE POLARISATION EN FORME D'ARC RAYONNANT ÉQUATORIALEMENT ET QUASI-ÉQUATORIALEMENT ET PROCÉDÉS ASSOCIÉS

Publication
EP 3460909 A1 20190327 (EN)

Application
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Priority
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Abstract (en)
Polarization current antennas include an arc-shaped dielectric radiator, electrodes, and a feed network. The electrodes and feed network are configured to generate an electric field within the dielectric radiator. The electrodes are positioned on the top and bottom of the dielectric radiator and the electromagnetic radiation is emitted through the outer surface thereof. Phase differences between excitation signals supplied to the electrodes may be selected so that a speed of a volume polarization distribution current pattern that is generated in the dielectric radiator will be substantially equal to the speed of light within the dielectric radiator. The antenna emits both conventional spherically decaying electromagnetic radiation and as non-spherically decaying electromagnetic radiation that decays as a function of distance d at a rate that is less than $1/d^2$. The non-spherically decaying radiation includes a highly focused beam that has an angular beamwidth that narrows as the distance d increases.

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Citation (applicant)
• EP 1112578 A
• US 8125385 B2 20120228 - SINGLETON JOHN [US], et al
• WO 2014100008 A1 20140626 - COMMScope INC, et al
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• [Y] US 2017187106 A1 20170629 - HASHIMOTO HIROYUKI [JP]
• [YD] WO 2014100008 A1 20140626 - COMMScope INC, et al
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• [A] US 2010039324 A1 20100218 - SINGLETON JOHN [US], et al
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• [A] LANL TEAM ET AL: "Eighteen-Month Report on LDRD 20080085 DR: Construction and Use of Superluminal Emission Technology Demonstrators with Applications in Radar, Astrophysics, and Secure Communications. Collaborators:2 Some general points about superluminal sources: multivalued retarded times and temporal focusing", 26 October 2011 (2011-10-26), XP055109343, Retrieved from the Internet <URL:http://laacg.lanl.gov/superluminal/pubs/DRsummary.pdf> [retrieved on 20140321]

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