Title (en)

Apparatus and method for information transmission by electromagnetic waves

Title (de)

Vorrichtung und Verfahren zur Übertragung von Nachrichten mittels elektromagnetischer Wellen

Title (fr)

Méthode et système de transmission d'informations par onde électromagnétique

Publication

EP 0995877 B1 20030507 (FR)

Application

EP 99402571 A 19991019

Priority

FR 9813304 A 19981023

Abstract (en)

[origin: EP0995877A1] Electromagnetic cased well information transmission comprises electrical insulation of metal casing tubes adjacent low resistivity formation layers. Information transmission from a cased well, using a downhole transmitter/receiver operating by guided electromagnetic waves created by electrical signal injection by a dipole connected to the metal casing tubes which guide the emitted waves comprises identifying low resistivity formation layers which cause transmission attenuation, and electrically insulating the tubes located at these layers. An Independent claim is also included for a system for carrying out the above information transmission method. Preferred Features: A mathematical model is used to calculate the minimum length to be insulated, taking into account the minimum characteristics of the electromagnetic transmission, especially the transmission distance and/or the information output rate. Insulation is effected by providing a cement-type insulating material in the gap between the casing tubes and certain formations. The transmitter/receiver is positioned near the lower end of a production tubing string, for transmitting bottom measurements or bottom equipment commands, or is positioned near the lower end of a well casing for transmitting bottom or drilling parameters or location measurements.

IPC 1-7

E21B 47/12

IPC 8 full level

E21B 47/12 (2006.01); **E21B 47/13** (2012.01); **G01V 3/30** (2006.01)

CPC (source: EP US)

E21B 47/13 (2020.05 - EP US)

Cited by

CN104937442A; EP2914986A4; US2019032473A1; US10995608B2; US7071837B2; US7249636B2

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DOCDB simple family (publication)

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