

Communications, Antennas, Optical

Multiple frequency parametric sonar

[9,602,143](#)

An air interface array system and method for generating electromagnetic transmissions is provided. The system includes partition elements separately and operationally connected to horizontal and vertical circuit boards. In transmission, a radio frequency input is provided to each board. Each circuit board has a phase selector that generates a symbol with one of four phases relative to a plane of the partition elements such an output signal is produced. A time delay selector delays the output signal in order to focus the transmitted beam to be an input signal to an amplifier. The amplified signal drives radio frequency ports to produce horizontally and vertically polarized radiated signal vectors. The signal vectors are combined to form a radio frequency modulation symbol vector. Multiple symbol vectors form a transmitted modulation waveform.

Multi-band cable antenna with irregular reactive loading

[9,553,368](#)

An antenna includes a first antenna section that can be joined to an antenna feed. The first section has conductive elements in series with reactive loads. The reactive loads are positioned with a regular spacing. The reactive loads and spacing are optimized for operation of the first section at the highest frequency. Additional antenna sections having successively lower frequencies are joined in series to the first antenna section. Each additional section has conductive elements joined in series with reactive loads at a particular spacing. The additional sections spacing and reactive loads are provided to work in conjunction with the higher frequency antenna sections to optimize the antenna for an additional frequency. A method for making such an antenna is further provided.