Abstracts

Digital communications using self-phased arrays

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A new technique for full duplex digital communications using adaptive phase conjugation is presented. The technique is based on mixing the RF signal to an intermediate frequency where it can be easily processed, and filtering the phase of the IF signal to separate the geometry phase and the message phase. A 6 GHz microstrip retrodirective antenna array was built, together with the signal IF processing needed for full duplex operation. The measured RCS values of a circular array are much flatter and are 0 to -5 dB up to /spl plusmn/80/spl deg/. Two way digital communications at a baud rate of 78 kbits/sec was also demonstrated with BER <10/sup -6/ for SNRs around 10 dB. The application areas are in high-performance digital mobile telecommunications for commercial and military applications.

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