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## Coherent Addition of BPSK Signals of Spaced Antennas with Complex Step-Down Frequency Conversion

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**Abstract.** A review of earlier developed methods of digital addition of BPSK signals by means of quadrature sampling at an intermediate frequency is carried out. The method of adding video signals at a zero carrier frequency that have undergone a complex step-down conversion with the formation of quadrature signals after sampling on a single analog-to-digital converter is considered. A variant of a reduced sampling rate allowing the use of low-frequency domestic programmable logic integrated circuits is analyzed. The high noise immunity of the method of digital addition of signals of spaced antennas with complex step-down conversion is demonstrated.

The authors show that the method of coherent addition of signals from spa antennas with complex step-down frequency conversion can be implemented on domestic FPGAs.

**Keywords:** method, digital addition of signals, very long baseline interferometer, band sampling, intermediate carrier frequency, complex step-down conversion

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