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CORRECTION OF MUTUAL COUPLING IN DIGITAL ANTENNA ARRAY

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Attempting to realize all potential features of antenna array frequently faces technological problems. One of the possible ways of lowering the influence of technological inaccuracies of digital antenna arrays (DAA) manufacturing is the application of the correction of the receiving channels performance based on the test-signals.

In this report, a possible approach to the transmission factor correction of multichannel receiving tract is discussed, that takes into consideration their mutual coupling. It is pointed out that an impulse signal is preferred as the pilot one. In this case in each channel the temporary location of the response is followed through, the needed spectral harmonic amplitudes are calculated and then the correction factors for chosen frequencies and directions of the pilot signal coming are determined.

The matrix synthesis of correction algorithms based on the maximum likelihood method is carried out. Peculiarities of single-reading and multi-reading correction procedures both for invariant and angle-dependent factors of mutual coupling are considered.