

To the Radio Centenary



**Proceedings of the  
1995 International Conference on  
Antenna Theory and Techniques**

**ICATT '95**

1995 November 21 - 23  
Kharkov, Ukraine

# USING OF HIGH-RESOLUTION IN TIME DELAY FOR THE ANALYSIS OF DISPERSIVE PROPERTIES AND LOSSES OF AN ANTENNA CABLE

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This report is devoted to studies of the possibility of using the narrow-band radiopulse packet with determined frequencies, fed to a research device input simultaneously, to analyze antenna cable transmission parameters.

Without going into details of forming and channeling such test-signals, the main attention in the report is paid to the synthesis of high-resolution time delay algorithms for narrow band radiopulses digitalized on radio and video frequency.

It is shown how to reduce this problem to the solution of an algebraic equation of order  $M$ . In this case, unknown estimated radiopulse time delay quantities at the investigated antenna cable output, can be found as roots of the equation:

$$\operatorname{tg} x^M - \operatorname{tg}^{M-1} x \cdot Z_1 + \operatorname{tg}^{M-2} x \cdot Z_2 + \dots + (-1)^M \cdot Z_M = 0,$$

where  $Z_m$  are the voltage coefficients, measured at a discrete reading of signal mixture at  $M$  time moments.

It is noted that the reception time difference of radiopulses allows to judge about the dispersion properties of the antenna cable. The followed - an re-calculation of signal time positions into their amplitude values gives information about the losses in investigated device.