

ADP.EXE INSTRUCTIONS

GENERAL

One of five types of antenna can be chosen with the command <Type of antenna>:

1. Spirally wound antenna made of litz wire.
2. Spirally wound antenna made of normal wire (non litz).
The wire type must be chosen in a sub menu.
3. Tube antenna. This antenna has one winding made of a tube with a specified inner diameter and an outer diameter. The tube material can be chosen.
4. Balanced antenna. This antenna consists of one main section and two (symmetric) side sections with an inverse polarity. The program maintains noise cancelling properties whilst parameters are changed. The wire is litz wire.
5. Balanced antenna with normal wire. As for 4 except the wire which is not litz wire.

CALCULATION MODES

There are up to 4 modes available (depending on antenna type selected):

1. Self inductance calculation. The self inductance considering the other variables (length, width, etc.) is calculated.
2. Length calculation. The length of the antenna considering the other variables including self induction is calculated. (Not available with balanced antennas)
3. Width calculation. Similar to 2 (not available with balanced antennas).
4. Number of windings calculation. The number of windings most closely matching the other variables is calculated. Since this is a whole number the answer is not entirely correct and the self inductance is adjusted.
(Not available with balanced antennas or with the tube antenna)

VARIABLES

The self inductance, or length, or width, or number of windings, together with the resistance, the Q and the total wire length (needed to make the antenna) are calculated. Furthermore the capacitance which is needed to obtain a resonant circuit for the frequency 134.2 kHz (or the frequency entered in the menu in the case of a tube antenna) is calculated.

First select the calculation mode required and then enter the inputs. The variable (self inductance, or length, or width, or number of windings) to be calculated cannot be given as an input.

The following variables can be entered as input variables :

Self inductance, Default self inductance (= 27 μ H), Length, Width and number of windings depending on the mode.

Wire diameter in case of the litz wire (= total wire diameter)

Wire type in case of normal wire: a number of predetermined types are defined

Extension wire length.

For the tube antenna : frequency, material and inner and outer diameter.

BALANCED ANTENNAS

Main/Side Antenna Toggle

Toggle between main and side antenna sections using the A key.

The commands Length, Width and Number of windings work on either the main antenna section or the side antenna sections depending on which is selected.

Design

The command DESIGN can be used to change antenna dimensions with the cursor keys. An image of the antenna appears on the screen to help. Five handles determine the place where the changes can be made.

The cursor keys work on the handle with the focus. The focus can be shifted to the next handle with the <TAB>-key.

The movement is increased when the <SHIFT>-key is pressed in combination with the cursor keys.

The program maintains the noise cancelling properties.