

Distributed capacitance effects inductor Q?

Source: <http://sci.tech-archive.net/Archive/sci.electronics.basics/2007-04/msg01249.html>

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 - *Date:* 28 Apr 2007 21:41:58 -0700
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Does anyone know why the distributed winding capacitance of a loop antenna, or any inductor, degrades the efficiency?

It would seem that a loop antenna with 100pF of winding capacitance in parallel with a external capacitor of 200pF would resonate at the same frequency as a antenna with no winding capacitance and a external capacitor of 300pF, and perform just as well, but apparently that's not the case.

The best explanation I got was that winding capacitance represents 'Low Q' and a external tuning capacitor represents 'High Q'

What is the difference between high and low Q, and why should a loop antenna with no winding capacitance perform any better than one with 50% of the total capacitance in the windings? Where is the energy loss?

Thanks,

-Bill

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