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Website: www.NexusResearchGroup.com

You tube video: www.youtube.com/video/tEDIJp42vrQ

Antenna length theory:

The wave equation states $v = \lambda f$
Velocity = wavelength X frequency

Electromagnetic waves travel at the speed of light then $v = 300,000,000 \text{ ms}^{-1}$
Since we are dealing in frequencies in the megaHertz range (10^6), we can
simplify the velocity as approximating 300 if we input f as units of MHz

Therefore for a full wavelength antenna, cut the wire to length as follows;

$$\lambda = 300 / f$$
$$\text{Length (m)} = 300 / \text{frequency (MHz)}$$

Vodafone 3G antenna length calculation:

2100 MHz main centres and 900 Mhz elsewhere

Full wave antenna lengths:

To resonate at 2100 MHz antenna will be $300 / 2100 = 0.143 \text{ m} = 14.3 \text{ cm}$

To resonate at 900 MHz antenna will be $300 / 900 = 0.333 \text{ m} = 33.3 \text{ cm}$

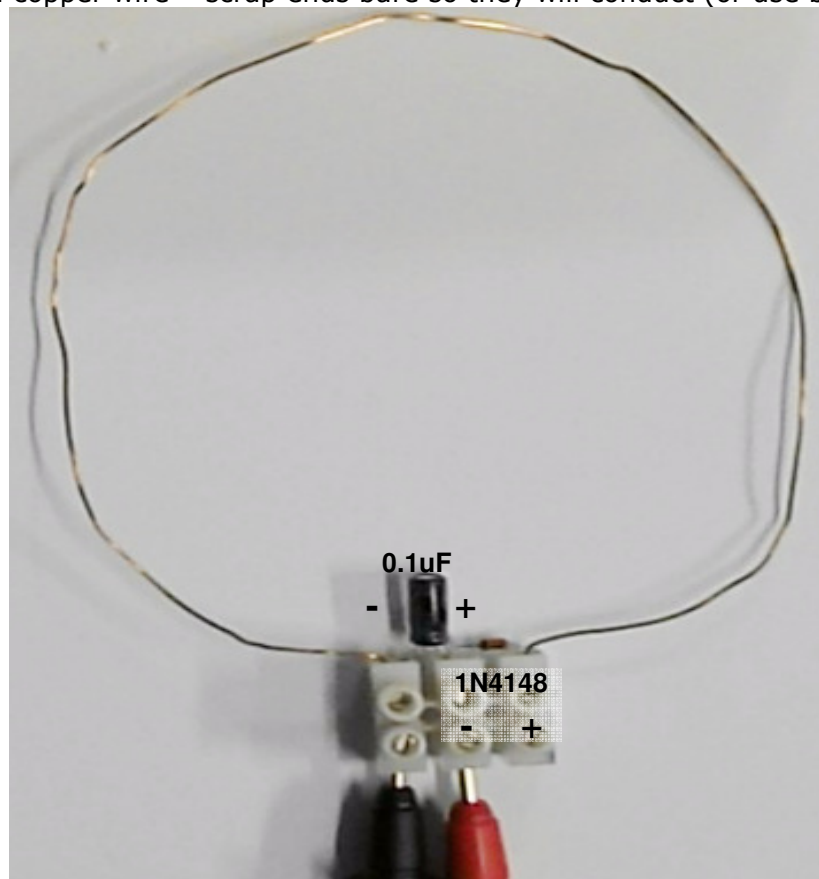
What's my number - send a text to 521 (free)

The cell phone signal detector

1n4148 signal diode

0.1 uF electrolytic capacitor

Enamelled copper wire - scrap ends bare so they will conduct (or use bare wire)



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Telecom XT (a 3G network):

850 MHz primarily and 2100 in some

Full wave antenna lengths:

To resonate at 2100 MHz antenna will be $300 / 2100 = 0.143 \text{ m} = 14.3 \text{ cm}$

To resonate at 850 MHz antenna will be $300 / 850 = 0.353 \text{ m} = 35.3 \text{ cm}$

2 Degrees:

900/1800 and 2100 MHz

Full wave antenna lengths:

To resonate at 2100 MHz antenna will be $300 / 2100 = 0.143 \text{ m} = 14.3 \text{ cm}$

To resonate at 1800 MHz antenna will be $300 / 1800 = 0.166 \text{ m} = 16.6 \text{ cm}$

To resonate at 900 MHz antenna will be $300 / 900 = 0.333 \text{ m} = 33.3 \text{ cm}$

Dual purpose antennas:

To resonate at 1950 MHz antenna will be $300 / 1950 = 0.154 \text{ m} = 15.4 \text{ cm}$

To resonate at 850 MHz antenna will be $300 / 850 = 0.353 \text{ m} = 35.3 \text{ cm}$

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