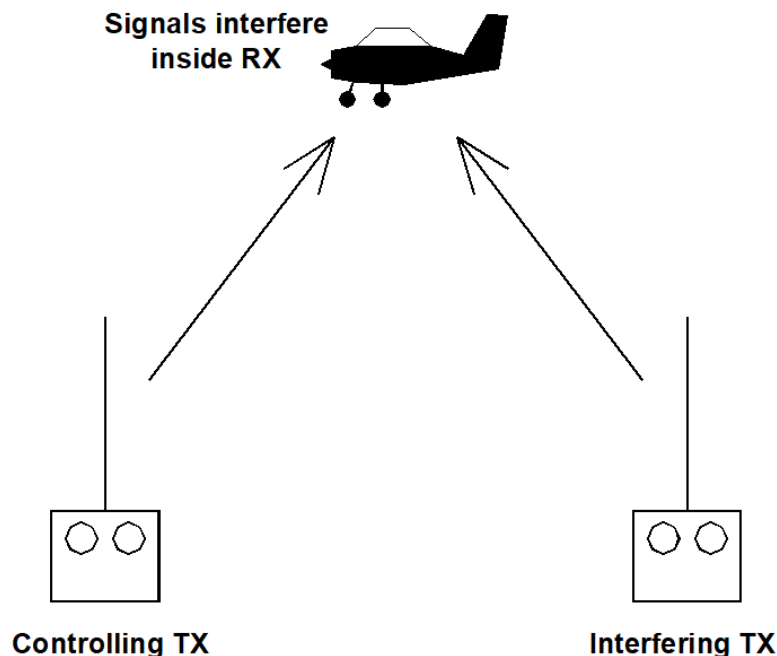


N.B. The information below is my best shot based on my personal experience. This article may be corrected or updated at any time so if you find a mistake or a better way of doing any of this please let me know.

There have been reports of mobile phones causing serious interference to some radio control systems. Erratic movement of the aircraft is quite normal when I fly but on a few occasions my models have definitely “twitched” of their own accord. On each of these occasions my mobile phone was on my person and switched on while I was flying. Here is a look at what could be going on.

Normal interference

Traditionally, interference to RC systems (such as 35MHz) is thought to have been mostly from signals on or near the frequencies used by the RC systems themselves to carry information. The interfering signals enter receivers through their antennas and block or corrupt the RC signal itself. C.B. radios and other RC transmitters would be typical sources of interference.



Interference to 2.4GHz RC systems from mobile phones is thought to be by a different mechanism.

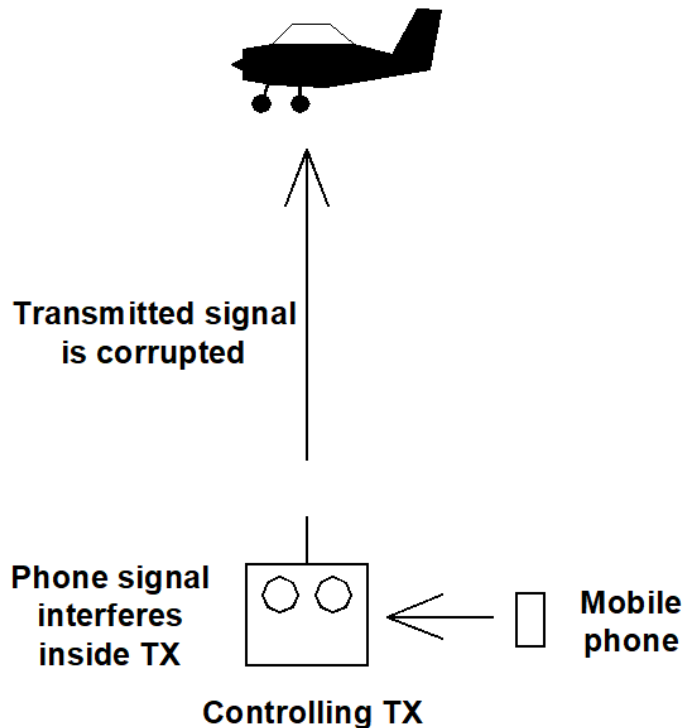
Mobile phone transmissions

In order for someone to be able to ring or text us the mobile network has to know roughly where our phone is. To achieve this, information is periodically “pinged” to and fro between our phone and a nearby mast at intervals all the time. The transmitted radio energy for the “ping” from our phone has to be strong enough for it to be received properly at the mast so it can be quite powerful. Furthermore from our perspective these “locating” transmissions are more or less sporadic or random which makes them difficult to detect and measure. The number of transmissions increase when a phone is rung, a conversation is taking place, or data is being sent to or received from the phone. Not only that, but the strength of phone transmissions may vary in order to minimise the phone battery consumption whilst maintaining contact with the local mast at different distances and varying conditions along the transmission path. We cannot assume emissions from a mobile phone will be the same from one minute to the next or from one day to another.

Interference to transmitters

All electronic circuits are potentially vulnerable to interference from radio energy. The main factors are the frequency and strength of the interfering signal, how vulnerable the circuit is and what protection it has been given. In our case the interfering signal is a transmission from our mobile phone and the circuit is one inside our RC transmitter.

The conjecture for this interference is that transmissions from mobile phones are sometimes powerful enough to interfere directly with the functioning of RC transmitter circuits.



We hope that radio control manufacturers are working to minimise these effects, but observing and testing them properly is very complicated, difficult and expensive, let alone fixing such problems. Until more is known I feel the only safe option is to switch my mobile phone off, put it in “Airplane” mode or leave it in the car when I am flying. Even if I believed my radio system to be immune, my phone could interfere with the transmitter of a pilot standing next to me on the flight line.

To try and make sure I don't forget to switch off my phone I modify the BMFA “SMART” acronym and use “Smartphone” for my pre-flight check. I check my phone is off, in “Airplane” mode or well out of the way before doing my “SMART” checks.