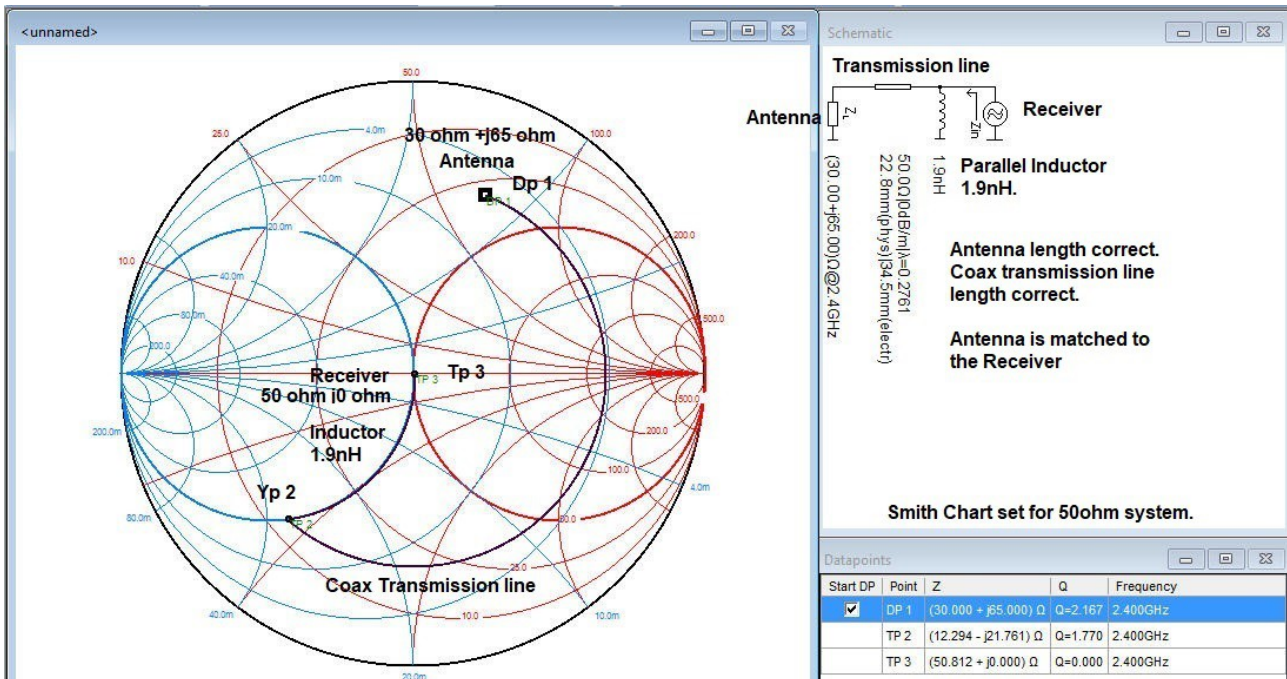
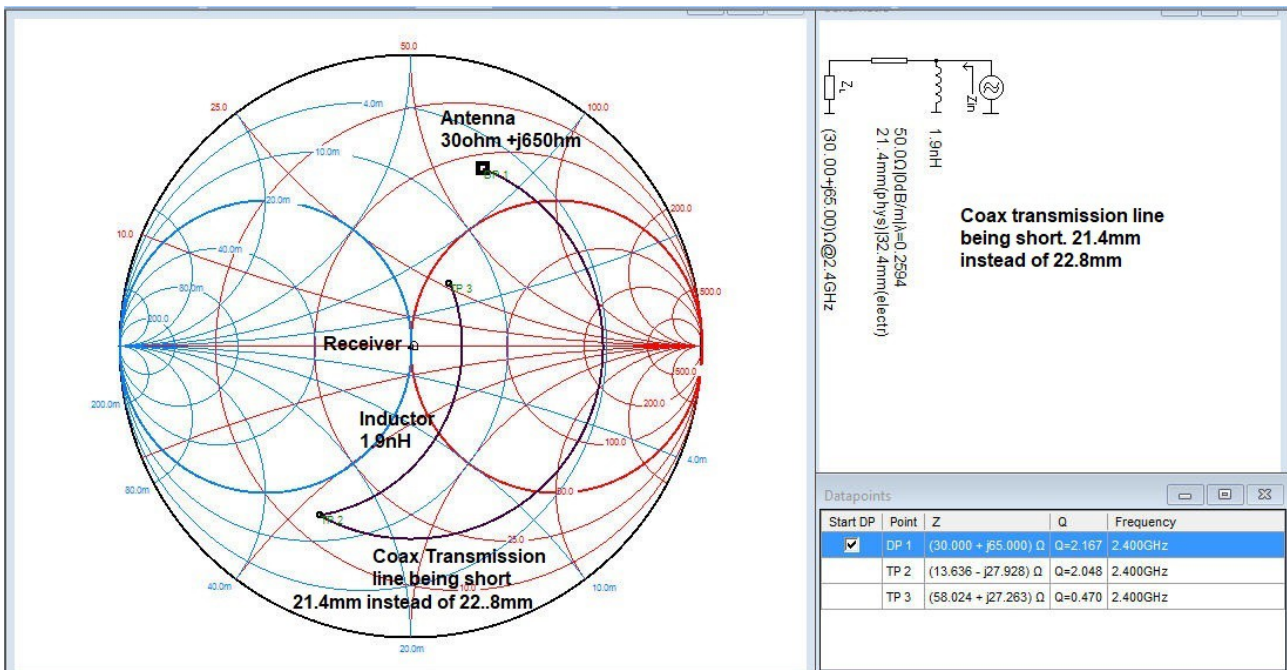


What happens when the coax transmission line length, or Antenna element length is not correct.

What happens when the coax transmission line length, or Antenna element length is not the correct length. Note: These examples are not actual RC Antenna system designs. Smith Charts are used to show in graphs how it works. As this is better than just words.

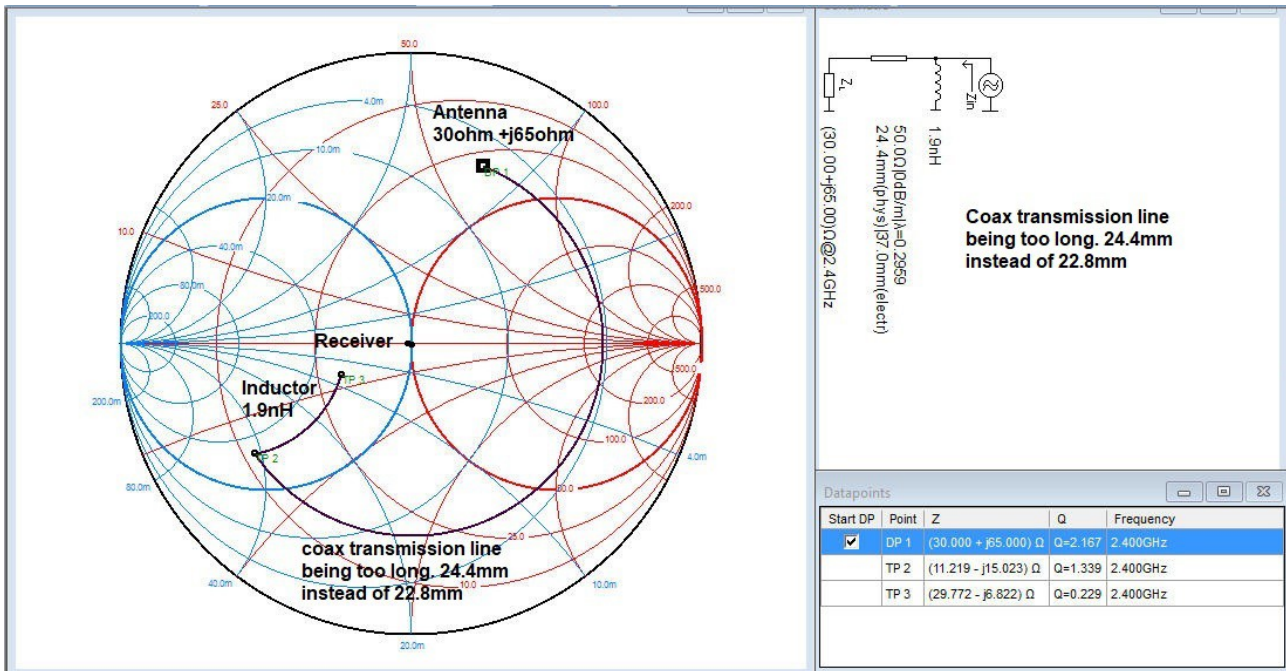


Shows that the receiver is matched. When the Antenna length is correct and the length of the coax transmission line is correct. For this type of Antenna matching system.

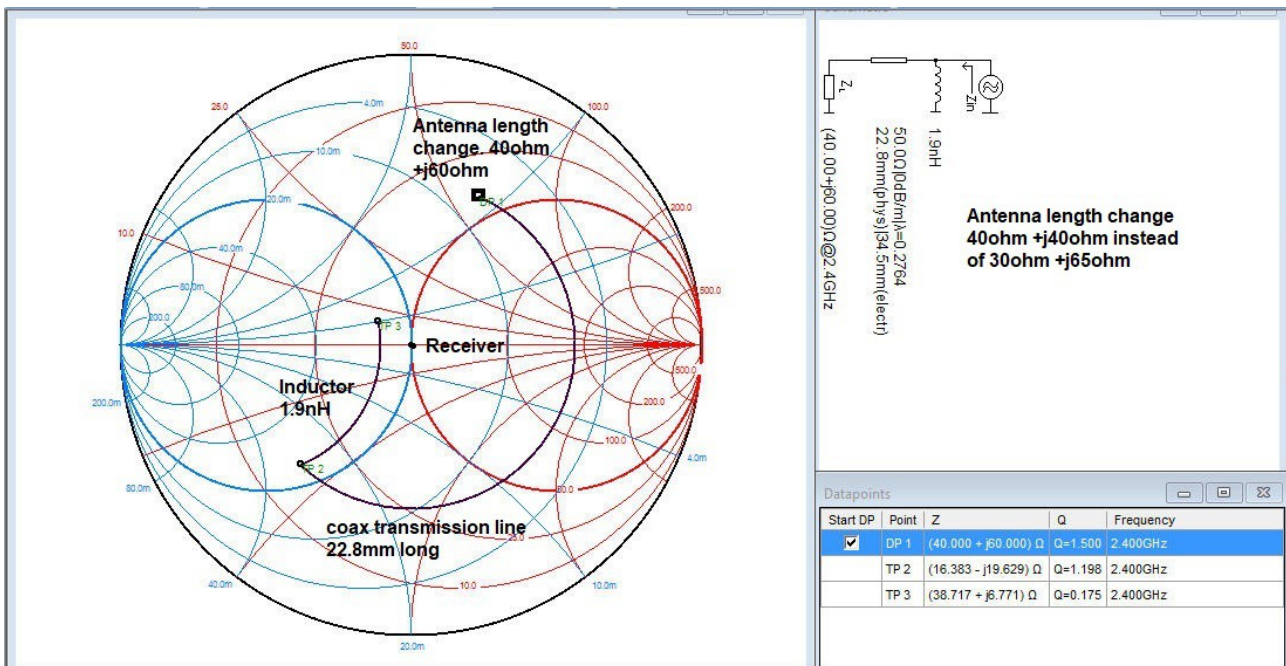


Shows when the Antenna element length is correct. But the coax transmission line is short and is not on the matching circle. And is not on the road to matching with the receiver.

What happens when the coax transmission line length, or Antenna element length is not correct.



Shows when the Antenna element length is correct. But the coax transmission line is too long, and is not on the matching circle. And is not on the road to matching with the receiver.



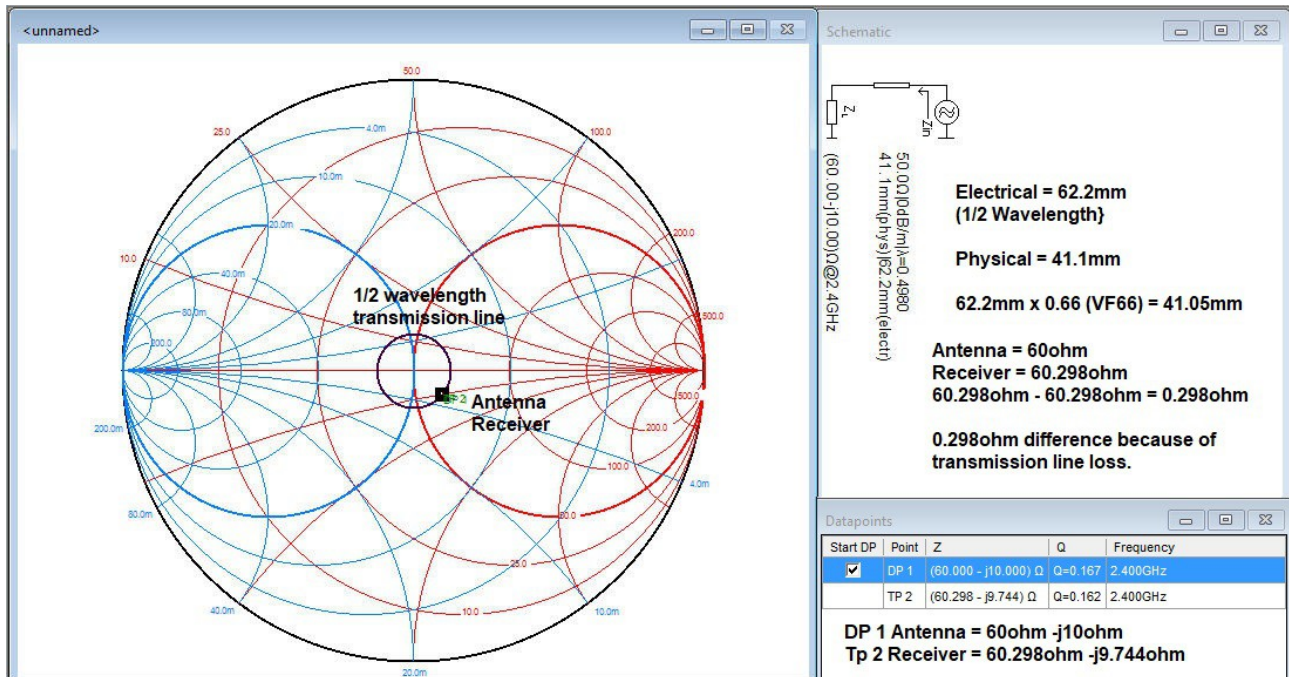
Shows when the Antenna element length is NOT correct. And the coax transmission line length is CORRECT. It is not on the matching circle. And is not on the road to matching with the receiver.

What happens when the coax transmission line length, or Antenna element length is not correct.

Conclusion:

Replacing a Antenna system. When this method of matching is used. Both the Antenna length and coax transmission line length. And the specification for the coax cable that is used, should be the same as what came with the receiver.

The above shows a matching method. But do receiver manufacturer use this method?



Some manufacturer's antenna system. Has the Antenna element length at $\frac{1}{4}$ wavelength with the coax transmission line $\frac{1}{2}$ wavelength. The above shows that a electrical $\frac{1}{2}$ wavelength transmission line, transfers the Antenna impedance to the receiver. So whatever the Antenna impedance is, will be transferred to the receiver. Question is. Is the Antenna element length cut to try and match the receiver input impedance (Probably not)? Or is the receiver input impedance made to match the Antenna impedance (most likely)? Making the receiver input impedance not 50ohm j0ohm.

Or maybe it is this, for some manufacture's antenna system. The receiver input impedance is 50ohm j0ohm. The coax transmission line is 50ohm. And the antenna element is cut to try to have it's impedance as close as possible to the receiver's input impedance? It is not likely that the Antenna impedance will be 50ohm j0ohm. When the Antenna element is on the end of the transmission line that has had the shield removed.

Does it matter when you also consider that. The antenna impedance will also change in different environments. As to where the Antenna is located on a RC model. Keep it clear if possible.

Probably the safest thing to do when replacing a Antenna system. It to make both the Antenna element length and coax transmission line length. And the specification for the coax cable that is used, is the same as what came with the receiver.