How to tune gradient ("grenade") coil

based on
https://www.youtube.com/watch?v=Sf6SnEE7guw
(7-21 minutes)
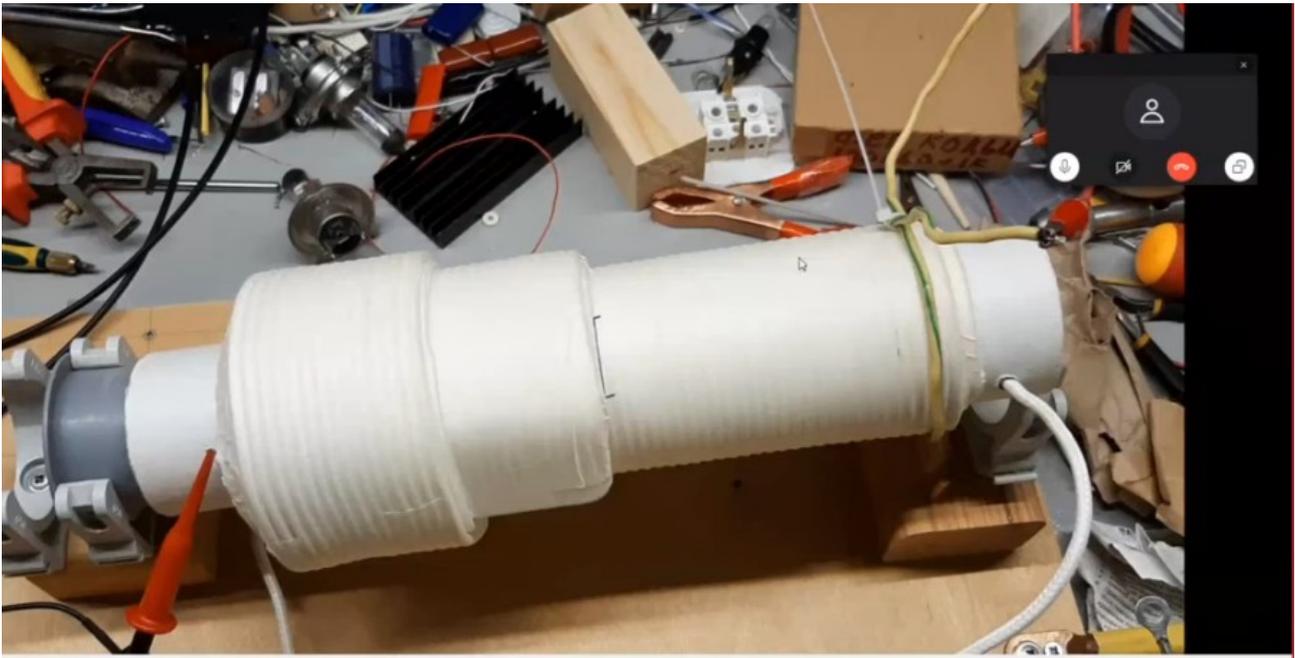

coil under test

1. short the coil and connect to the grounding (the one which will be used to run the system)
2. connect scope to the middle of the coil (where reverse turns starts, see scope probe on the left)
3. feed sine signal from lab generator thru one turn (see yellow-green turn on the right)
set signal amplitude to the maximum (10v)
there will be 0.45v on the one turn coil (because of 50ohm output)

for this particular coil frequency is 910KHz


pic.1 coil's response
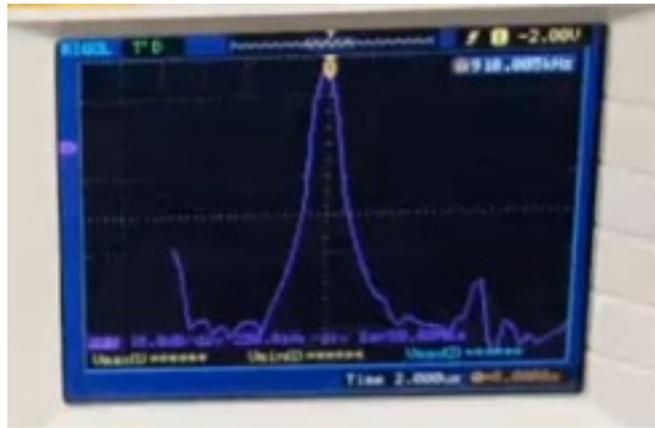
pic.2 first peak 910Khz

There are two groups of frequencies on the pic.1 (red area, green area)
Tune tesla coil approximately to 910Khz (main frequency)
Tune push pull to a harmonic of 910Khz (in region approx. 15-30Khz)
Tune antenna to one of frequencies from green area

to find main frequency use magnetic field sensor like this


small coil on ferrite core and two leds

find frequency at which leds will be bright inside the coil, along all coil