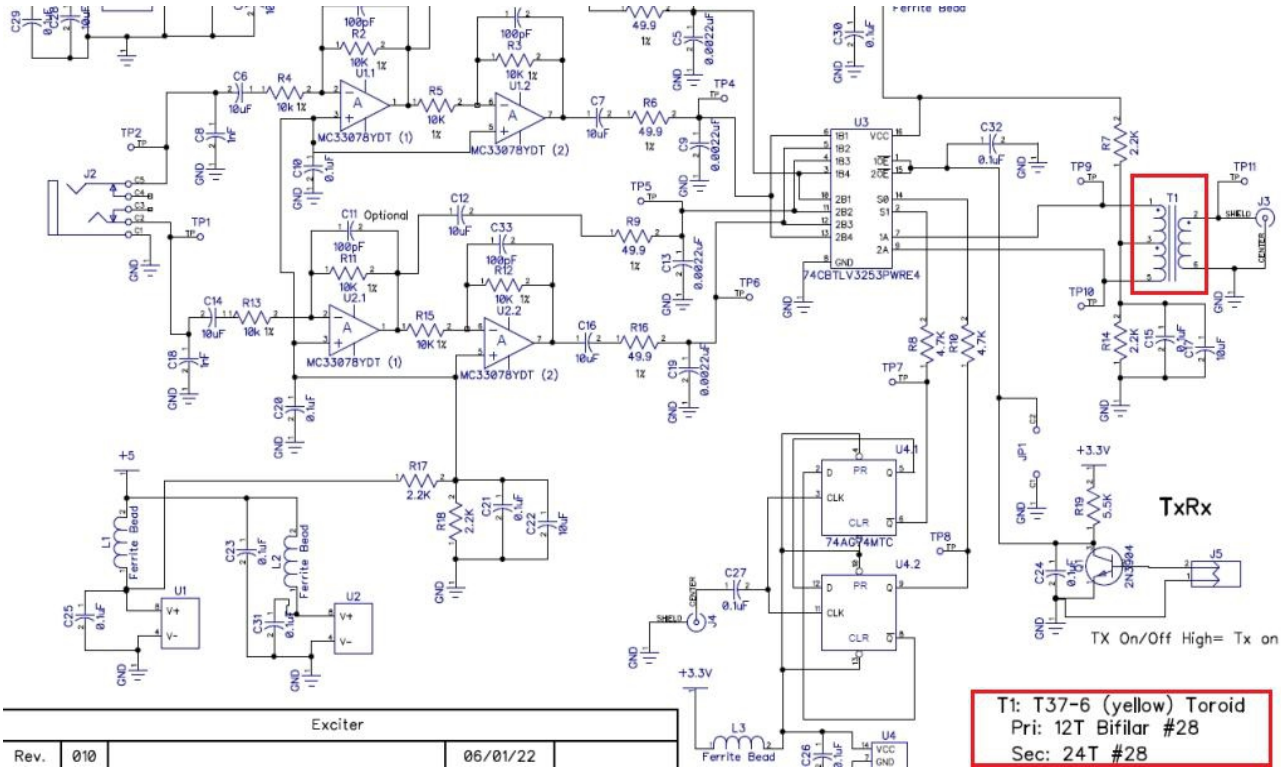


T41EP::QSE module::Output transformer

Author: Wald **3Z6AEF** [12 Aug 2022]

Constructor's choice

The diagram of the Rev.010 T41EP QSE module shows the T37-6 output transformer. In the BOM table, T1 transformer is described as type 0553-0013-BC-F [1] (footnotes at the end of the page).
Why did the designer choose the T37-6, eventually?
As I was ordering items at Digikey anyway, I added a few 0553-0013-BC-F to my cart, just out of curiosity... Let's do experiment! ?

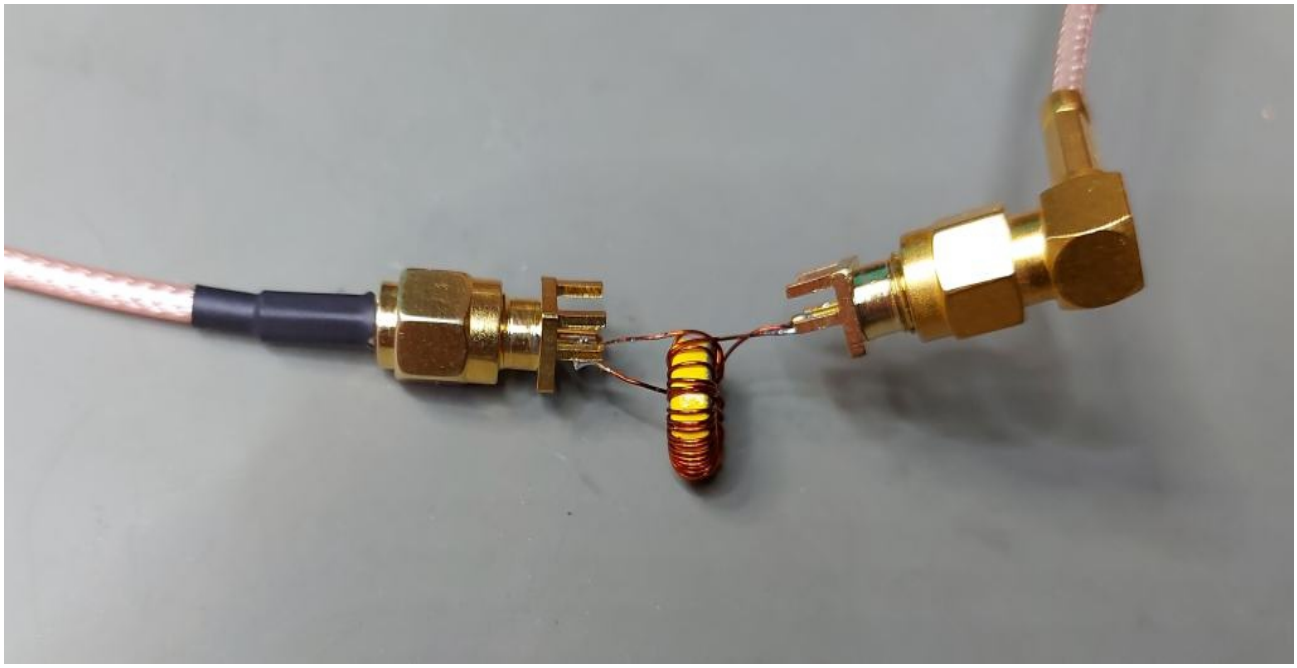
Transformers

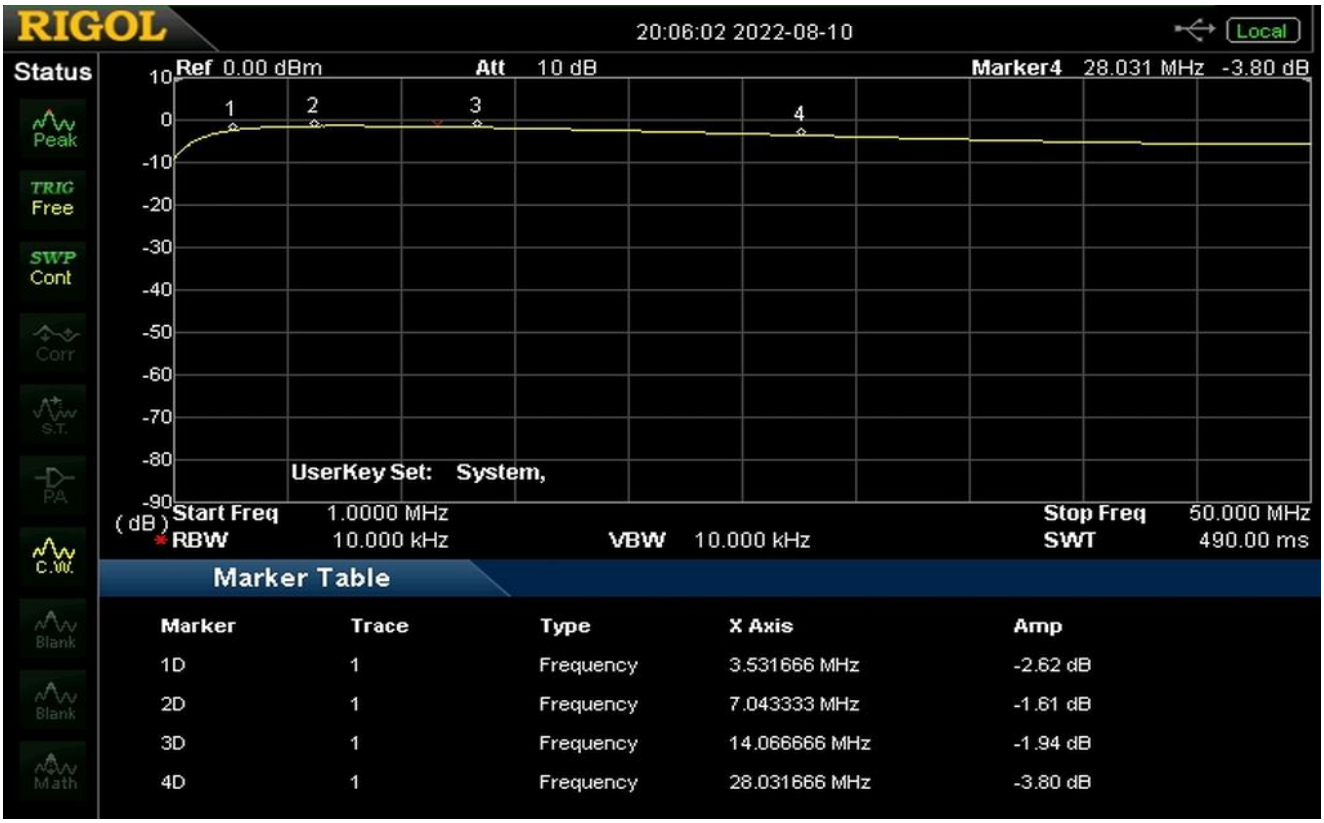
The transformer type 0553-0013-BC-F has a 1:1 ratio (with center tapping) and measured inductance of 1.4 mH (**milli**henries). On the other hand, coil wounded with 24T #28 AWG on a T37-6 powder core was measured as only as 1.7uH (**micro**henries).

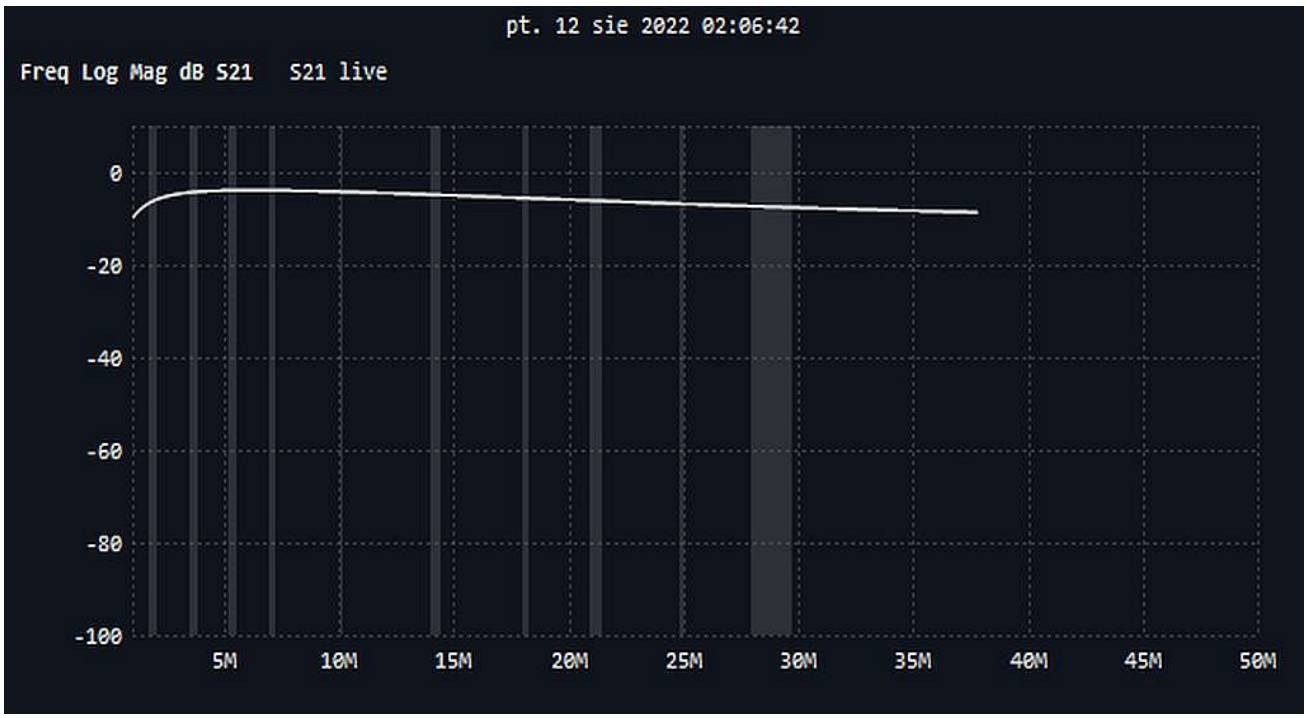
Measurement : transmission frequency response

I measured both transformer's transmission frequency response in HF range, using DSA815/TG and nanoVNA-H4.

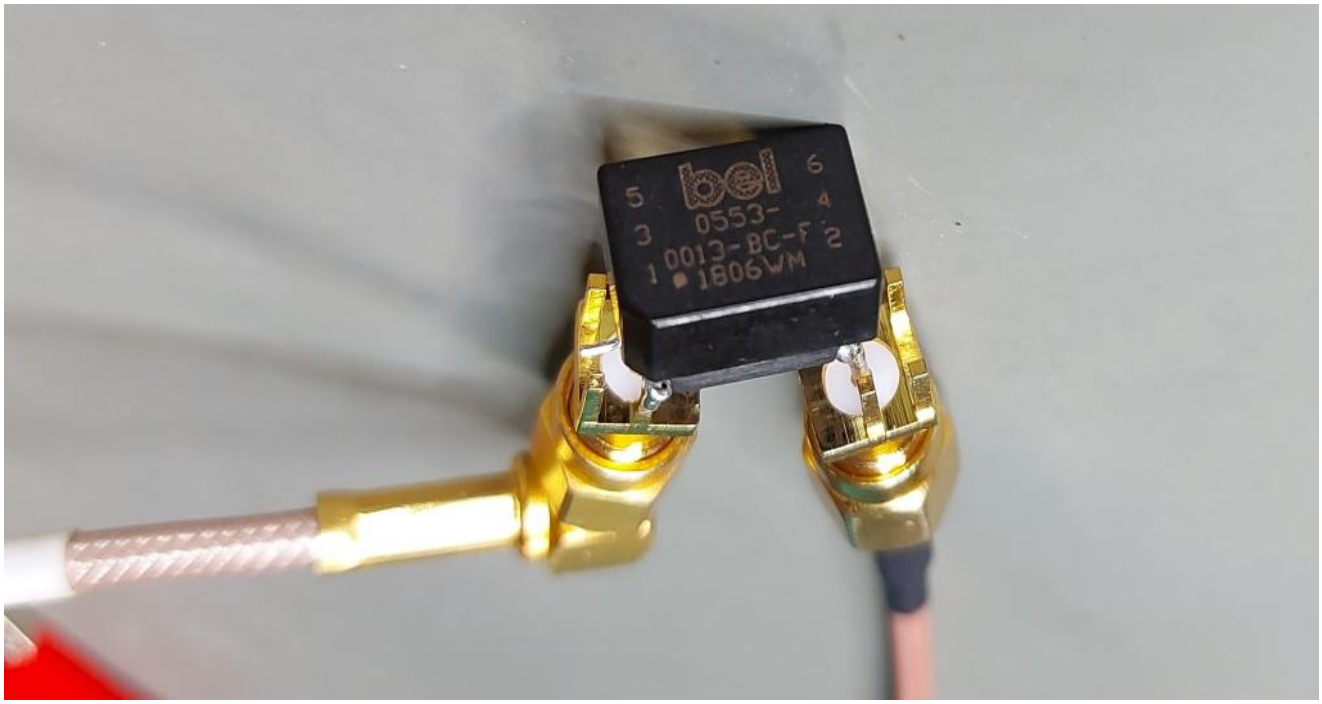
T37-6 transformer:

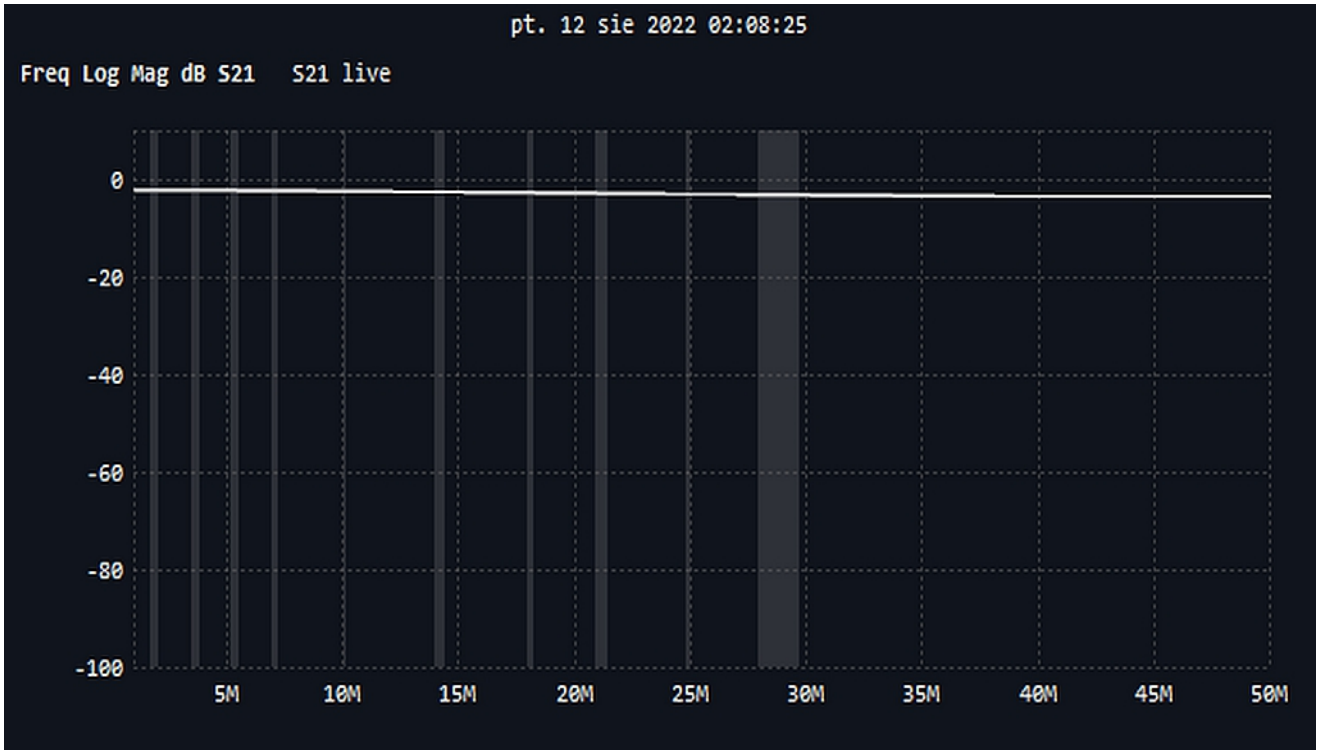






0553-0013-BC-F transformer:

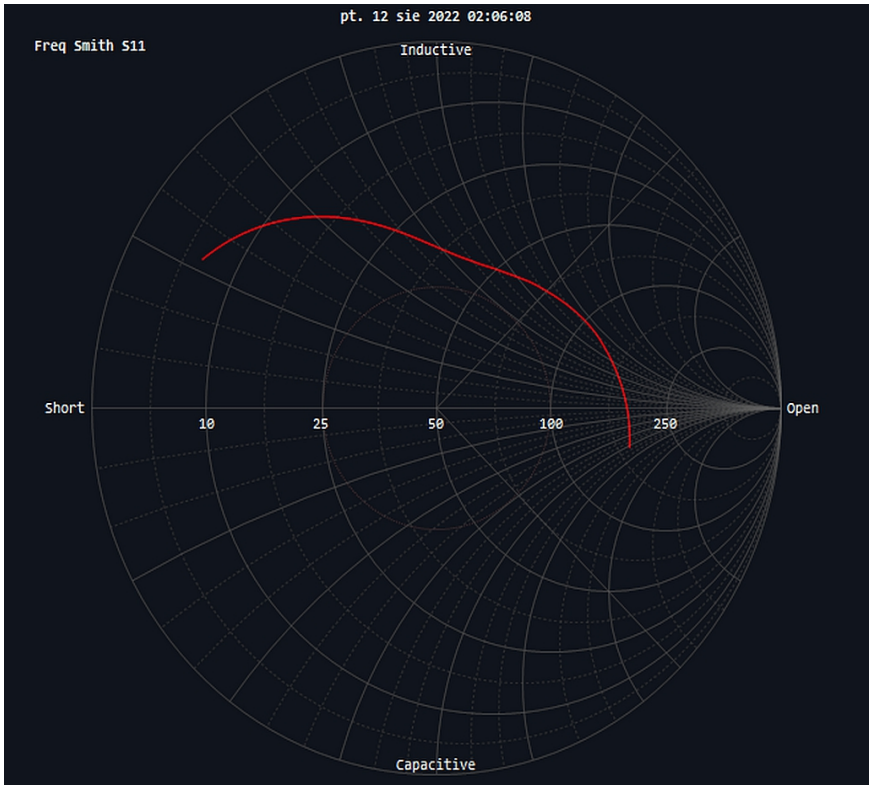




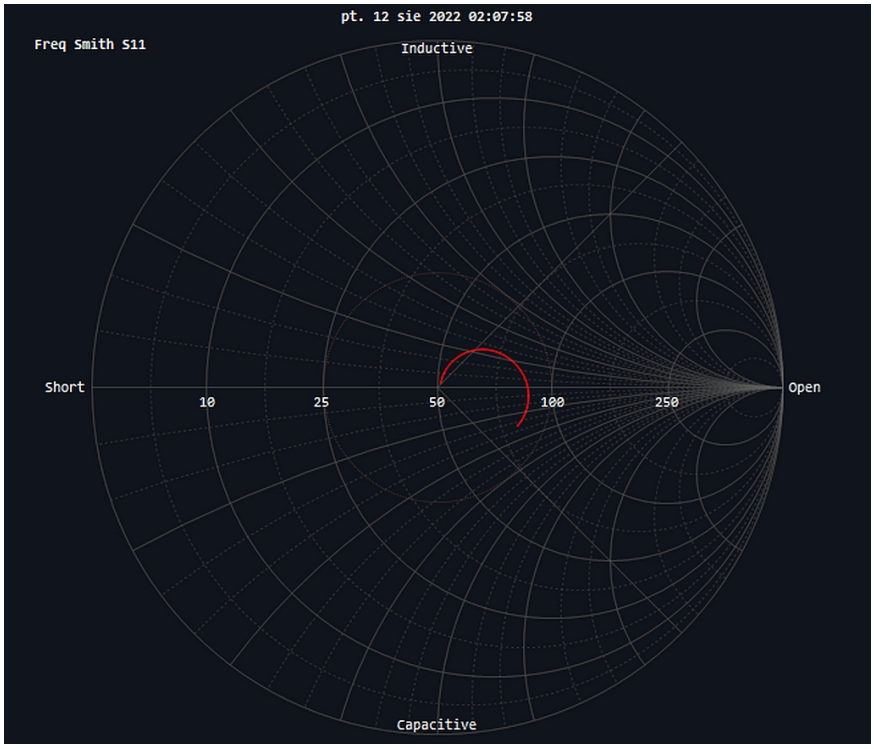
It seems that LAN transformer has better frequency response than T37-6 transformer. But what about reflections?

Measured with nanoVNA-H4, I got

for T37-6 transformer:

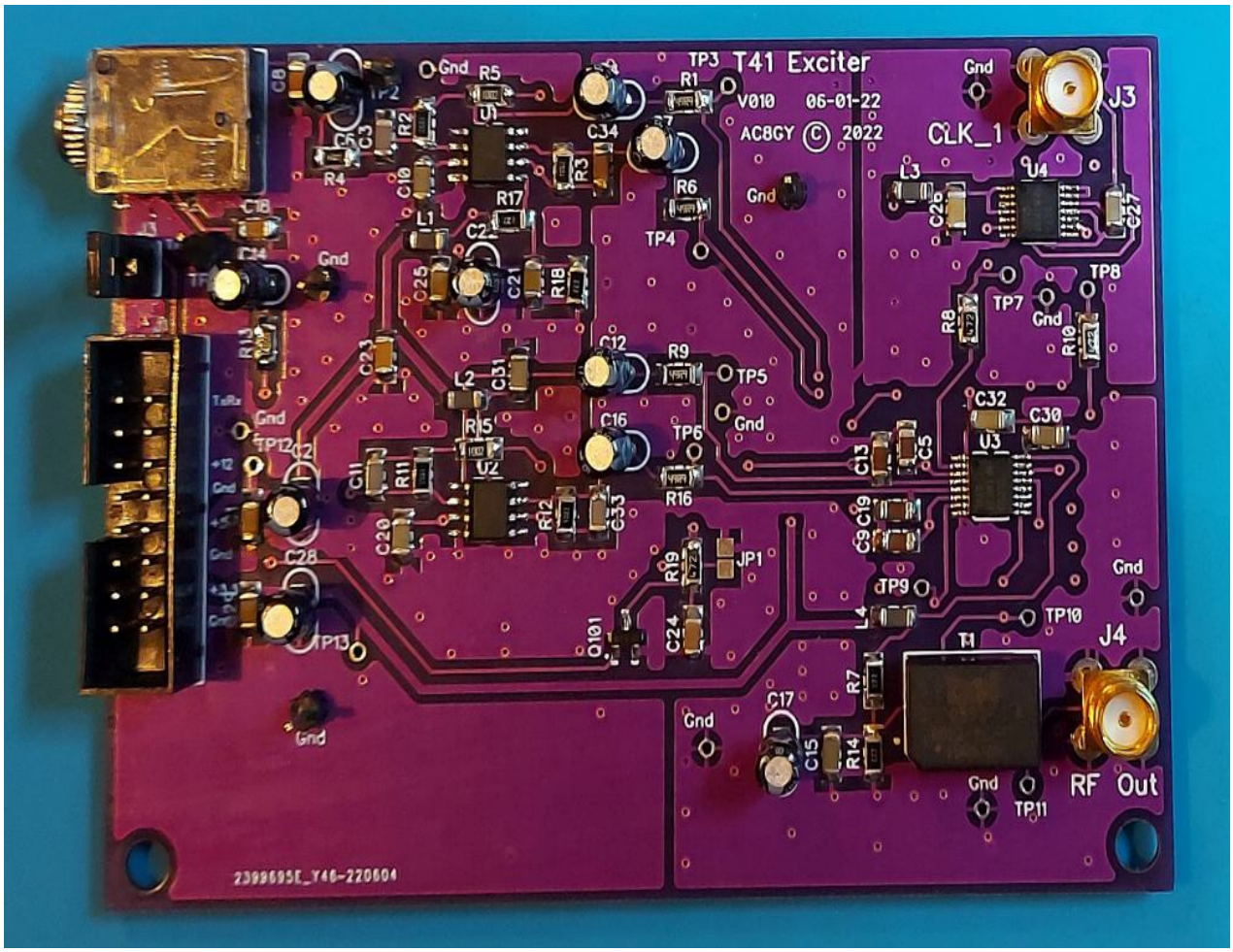


and for 0553-0013-BC-F transformer:



Sooooo...

Experimenter's choice:



Links and footnotes:

---

1. 0553-0013-BC-F data sheet: https://media.digikey.com/pdf/Data Sheets/Bel Fuse PDFs/0553-0013-BC-F.pdf