

Antenna matching tool for ST25R3911B/ST25R391x devices

Data brief

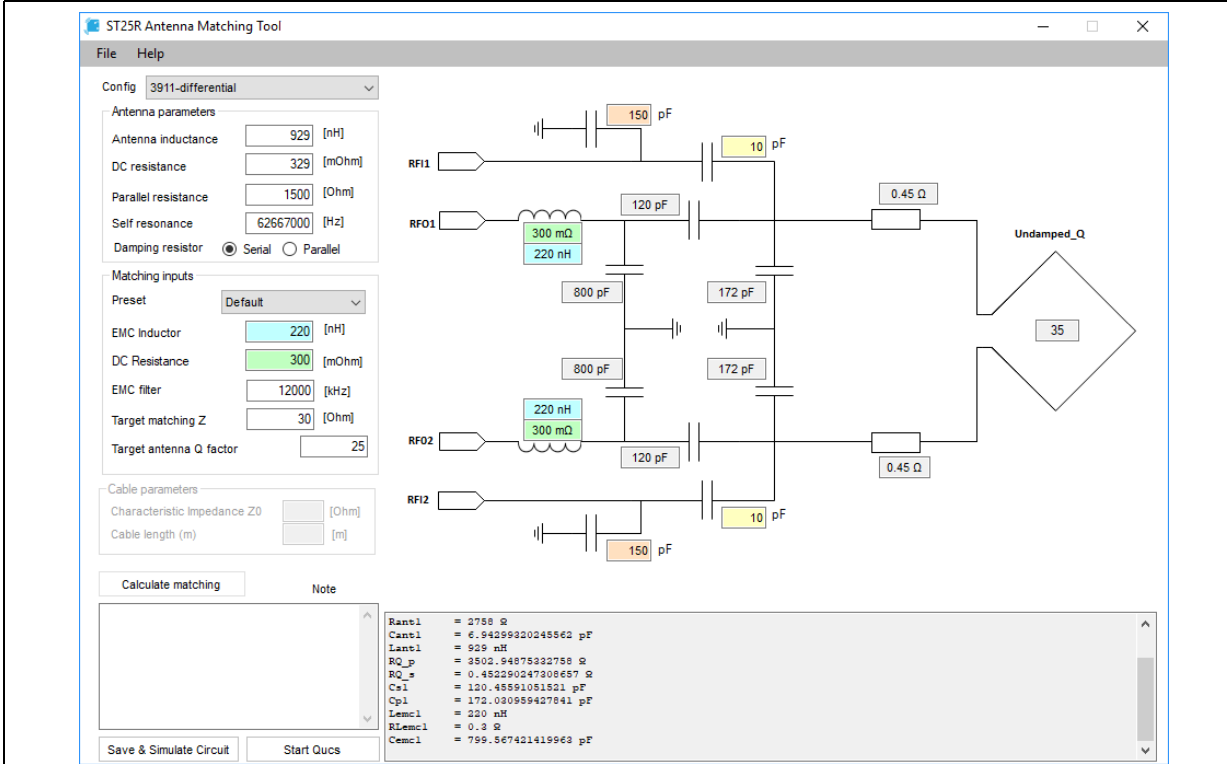
Features

- STSW-ST25R004 is a software that calculates the matching network for antennas connected to ST25R3911B/ST25R391x devices, using Qucs (Quite Universal Circuit Simulator) to simulate the antenna and matching network characteristics.
- The software supports the following products:
 - ST25R3910
 - ST25R3911
 - ST25R3911B
 - ST25R3912
 - ST25R3913
 - ST25R3914
 - ST25R3915
 - ST25R3916
 - ST25R3917

Description

STSW-ST25R004 contains a graphical user interface (GUI) to specify the antenna parameters and the target matching. It performs transient, AC, and S-parameter simulations of the calculated antenna schematic.

AN4974 and AN5276 (both available on ST website) provide guidance on the measurement of the antenna parameters required as input for this matching tool. With these inputs a best matching circuit can be defined.



Antenna parameters

- Antenna inductance: 929 [nH]
- DC resistance: 329 [mOhm]
- Parallel resistance: 1500 [Ohm]
- Self resonance: 62667000 [Hz]
- Damping resistor: Serial Parallel

Matching inputs

- Preset: Default
- EMC inductor: 220 [nH]
- DC Resistance: 300 [mOhm]
- EMC filter: 12000 [kHz]
- Target matching Z: 30 [Ohm]
- Target antenna Q factor: 25

Cable parameters

- Characteristic impedance Z0: [Ohm]
- Cable length (m): [m]

Calculated parameters:

```

Rant1 = 2758 Ohm
Cant1 = 6.94299920245562 pF
Lant1 = 929 nH
RQ_p = 3502.94875332758 Ohm
RQ_s = 0.452250247308657 Ohm
Cp1 = 120.45591051521 pF
Cp1 = 172.030959427841 pF
Lemc1 = 220 nH
RLemc1 = 0.3 Ohm
Cemc1 = 799.867421419962 pF
  
```

1 License

STSW-ST25R004 is delivered under the Mix My_Liberty (SLA0052) software license agreement.

The software components provided in this package come with different license schemes, as shown in [Table 1](#).

Table 1. License scheme

Software component	Owner	License
ST25R Antenna Matching Tool binary	STMicroelectronics	ST proprietary
Qucs	Qucs team	GPL v2

2 Revision history

Table 2. Document revision history

Date	Revision	Changes
05-Jul-2017	1	Initial release.
19-Feb-2020	2	Updated document title, <i>Features</i> and <i>Description</i> . Added image on cover page and <i>Section 1: License</i> .

IMPORTANT NOTICE – PLEASE READ CAREFULLY

STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2020 STMicroelectronics – All rights reserved