

# Superconducting Quantum Computing - Task #22836

## spectroscopy 2.6

06/28/2019 02:28 PM - Silvia Zorzetti

<b>Status:</b>	New	<b>Start date:</b>	06/28/2019
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>		<b>% Done:</b>	0%
<b>Category:</b>		<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>		<b>Spent time:</b>	0.00 hour
<b>Description</b>			
Starting spectroscopy on 2.6 cav fundamental mode			

### History

#### #1 - 07/01/2019 10:38 AM - Silvia Zorzetti

- File 737607mag.png added

Spectroscopy done, found 2 peaks, 2.590817GHz, 2.5910375GHz. Running a finer sweep around both peaks. Also, it has to be noticed that at "high" power, about 25dBm from the generator the cavity and qubit look already dispersively coupled.

#### #2 - 07/02/2019 10:08 AM - Silvia Zorzetti

- File 7376084126mag.png added

- File 7376084126mag\_norm.png added

Dispersive shift about +135Hz. However it is difficult to compute as at higher power the cavity is already in dispersive regime.

$\Delta = \Omega_r - \Omega_q > 0 \rightarrow \Omega_r > \Omega_q$ .

I find unlucky that the qubit frequency is lower than the cavity. Investigating this issue.

#### #3 - 07/03/2019 11:04 AM - Silvia Zorzetti

Running spectroscopy on the second harmonic, around 4.7GHz. Expect a dispersive shift of about 2kHz.

For Daniil, I am using the black SA, as we agreed yesterday. I will use the generato GPIB-19 for qubit spectroscopy.

#### #4 - 07/06/2019 10:32 PM - Silvia Zorzetti

Start qubit search in a range from 4GHz to 5.5GHz.

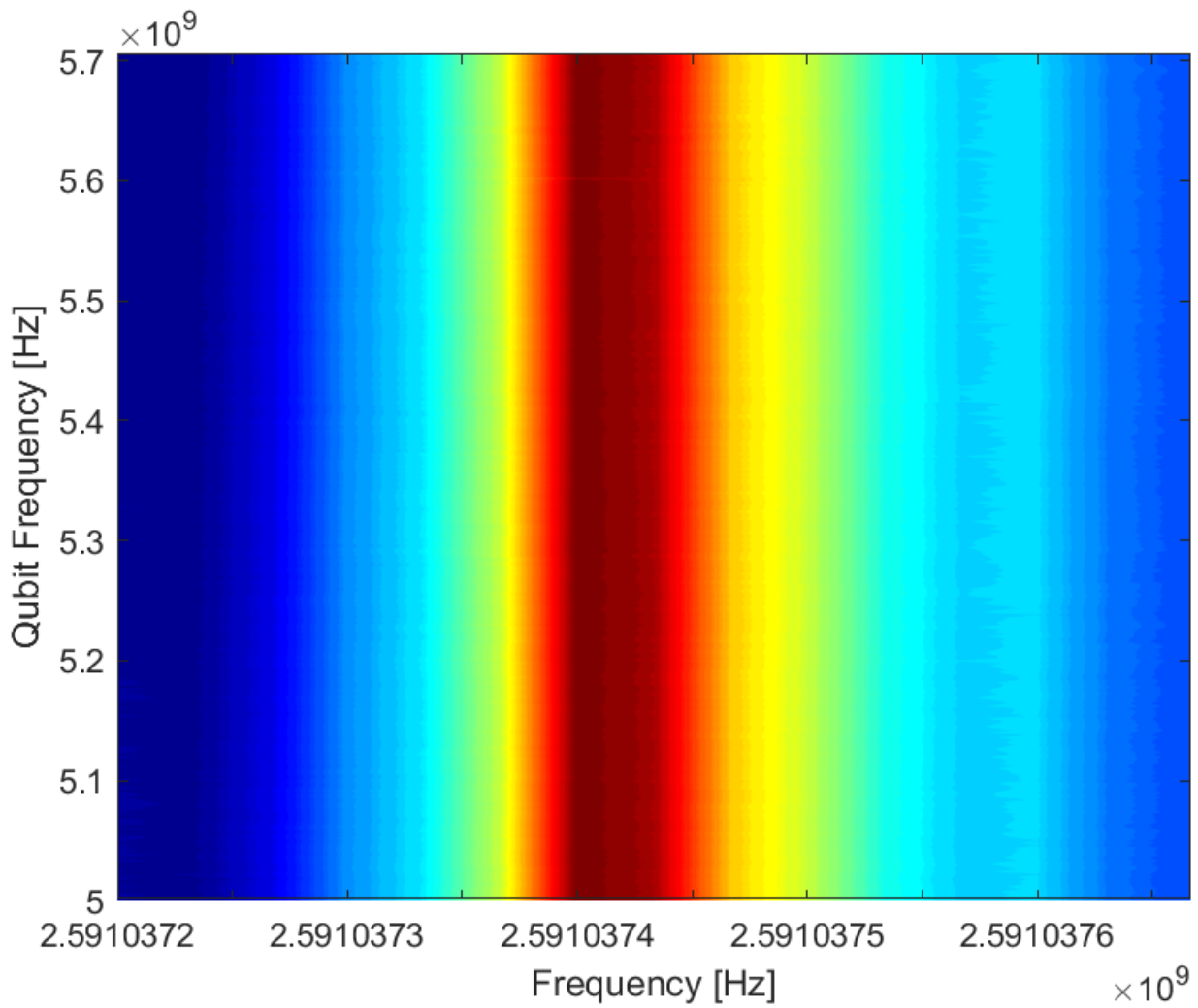
#### #5 - 07/08/2019 10:07 AM - Silvia Zorzetti

- File 7376136089mag.png added

#### #6 - 07/08/2019 10:10 AM - Silvia Zorzetti

- File 7376144200mag.png added

Found a frequency around 5.6 GHz. However I remember this value could be a mode of the flange. I am working on this frequency range



#7 - 07/08/2019 11:54 AM - Silvia Zorzetti

- File CavityMode\_20181206.JPG added

I checked the last measurement data (December 2018). There is a mode at the flange at 5.7GHz. This gives confidence that the 5.602GHz found now is instead qubit mode. I am working on this.

See the attached file from the run on December.

CavityMode\_20181206.JPG

#### Files

737607mag.png	42.6 KB	07/01/2019	Silvia Zorzetti
7376084126mag_norm.png	88.8 KB	07/02/2019	Silvia Zorzetti
7376084126mag.png	76.5 KB	07/02/2019	Silvia Zorzetti
7376136089mag.png	81.2 KB	07/08/2019	Silvia Zorzetti
7376144200mag.png	123 KB	07/08/2019	Silvia Zorzetti
CavityMode_20181206.JPG	85.1 KB	07/08/2019	Silvia Zorzetti