**2.Resonance in electrical circuits**

**2.2. Laboratory tests**

**2.2.1.**Voltage resonance

**2.2.1.1.** Testing the impact of capacitance on voltage resonance

The measuring system is shown in fig.2.11.



**Figure 2.11** Diagram of measuring

Marks:

G - generator, A - ammeter, VL, VC, V - voltmeter ,

R - decade resistance, L - decade inductance,

C - decade capacitance.

Measurements for different capacitances are performed in a system, the scheme is given in fig. 2.11. Results of measurements and calculations write in the table 2.1.

**Table 2.1.** the

U =......, f =......, L =......, R =......

|  |  |  |
| --- | --- | --- |
|  | Measurement | Calculations |
| Lp. | C | I | UL | UC | XC | XL |
|  | μF | mA | V | V | Ω | Ω |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**2.2.1.2.** Frequency characteristics

Measurements for different frequency values are performed in a system, the diagram of which is given in fig. 2.11. Results of measurements and calculations write in the table 2.2.

**Table 2.2.** the

U=......, f =. .. ..., L =. .. ..., R =. .. ...

|  |  |  |
| --- | --- | --- |
| The Lp. | Measurement | Calculations |
| F | I | UL | UC | XL | XC |  |
|  | Hz | mA | V | V | Ω | Ω | - |
| 1. 1.
 |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

**2.2.2.** Current resonance

2.2.2.1. Testing the impact of capacitance on voltage resonance

The measuring system is shown in fig. 2.12.



**Figure. 2.12.**Measuring System diagram

Marks:

G - generator, A, AL, AC, - ammeter, V - voltmeter ,

R - decade resistance, L - decade inductance,

C - decade capacitance.

Measurements for different capacitances are performed in a system, the scheme is given in fig. 2.12. Results of measurements and calculations write in the table 2.3.

**Table 2.3.** the

U =......, f =......, L =......, R =.... ..

|  |  |  |
| --- | --- | --- |
|  | Measurement | Calculations |
| Lp. | C | I | IC | IL | XC | XL |
|  | μF | mA | mA | mA | Ω | Ω |
| 1. 1
 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

2.2.2.2. Frequency characteristics

Measurements for different frequency values are performed in a system, the diagram of which is given in fig. 2.12. Results of measurements and calculations write in the table 2.4.

**Table 2.4.** the

U=......, L =…..., C =…..., R =……

|  |  |  |
| --- | --- | --- |
|  | Measurement | Calculations |
| Lp. | F | I | IC | IL | XC | XL |
|  | μH | mA | Has | Has | Ω | Ω |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |