

# Device Modeling Report

COMPONENTS: CAPACITOR/ CERAMIC  
PART NUMBER: ECKATS472ME  
MANUFACTURER: PANASONIC  
REMARK: TA=60C



**Bee Technologies Inc.**

## Theory: Auto Balancing Bridge Method

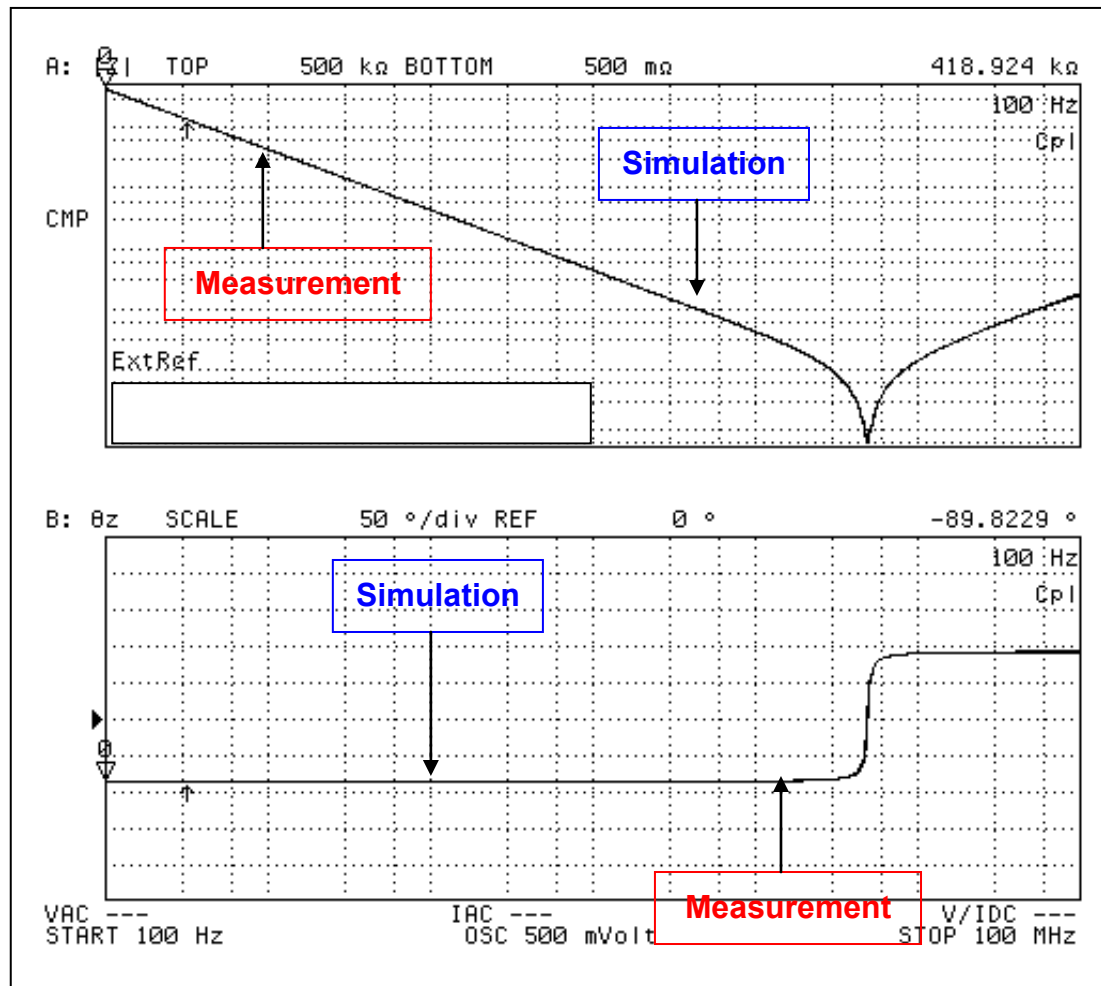
### Optimization of Simulation

Range of adjustment Frequency: 100Hz to 100M(Hz)

Frequency vs.  $|Z|$  and Frequency vs.  $\theta_z$  Characteristic

Attention)

*Please use SPICE MODEL within the range from 100Hz to 100M(Hz)*



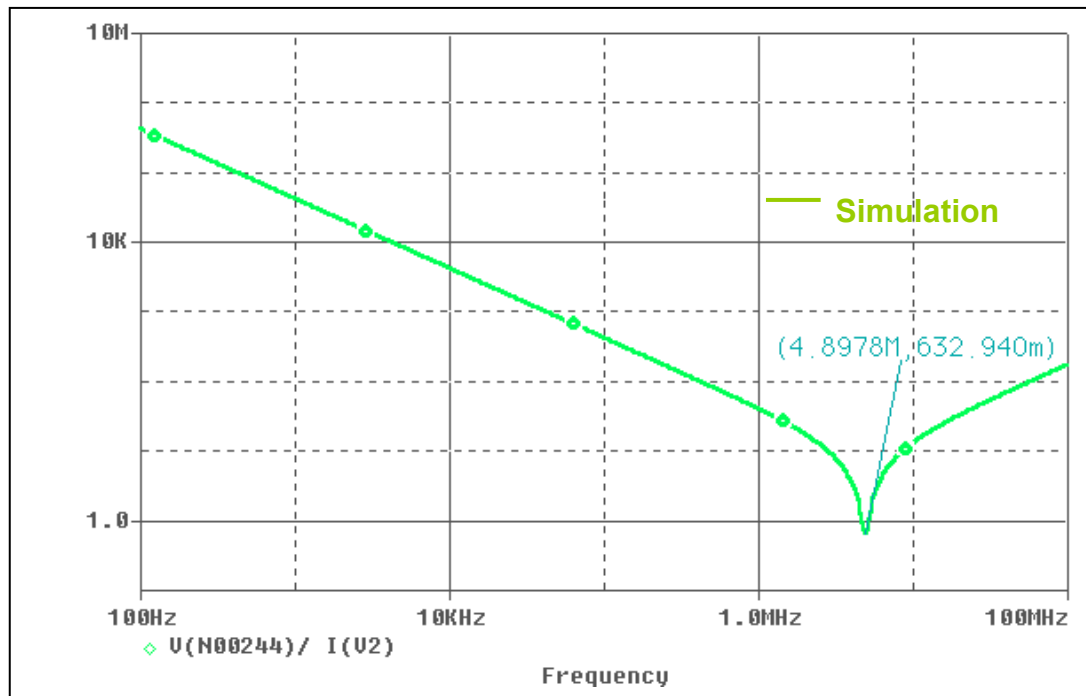
L1	
C1	
R1	

Equivalent circuit

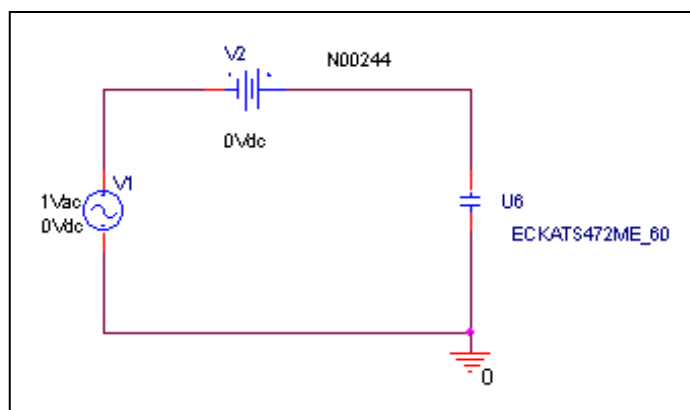


## Frequency vs. |Z| Characteristic

### Circuit Simulation result



### Evaluation Circuit



**Simulation result**

<b>Frequency (Hz)</b>	<b>IZI (ohm) :Measurement</b>	<b>IZI (ohm) :Simulation</b>	<b>% Error</b>
100	424.269K	422.836K	0.3378
1K	42.9419K	42.284K	1.5321
10K	4.31504K	4.2253K	2.0797
100K	436.658	422.663	3.2050
1M	42.2016	40.554	3.9041
10M	12.9884	13.130	1.0902
100M	158.205	173.011	9.3587

	<b>Measurement</b>	<b>Simulation</b>	<b>%Error</b>
<b>FSRF(Hz)</b>	4.9545M	4.8978M	1.1444
<b>IZI (ohm)</b>	615.031m	632.940m	2.9119