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Report - [Module Name]

1 Introduction

The introduction should be one to two paragraphs and include background information on the module's hardware and explain the goal(s) of the design.

Remember: **effective technical reports convey the key essential information in a concise and clear manner.** Focus on quality, not length. You can also cite references or link to datasheets using the `hyperref` package.

2 Design

The design section should include a detailed description of the module's design and how it was implemented. Hardware and software layout diagrams (e.g., hardware connection block diagrams or software flow charts) should be included.
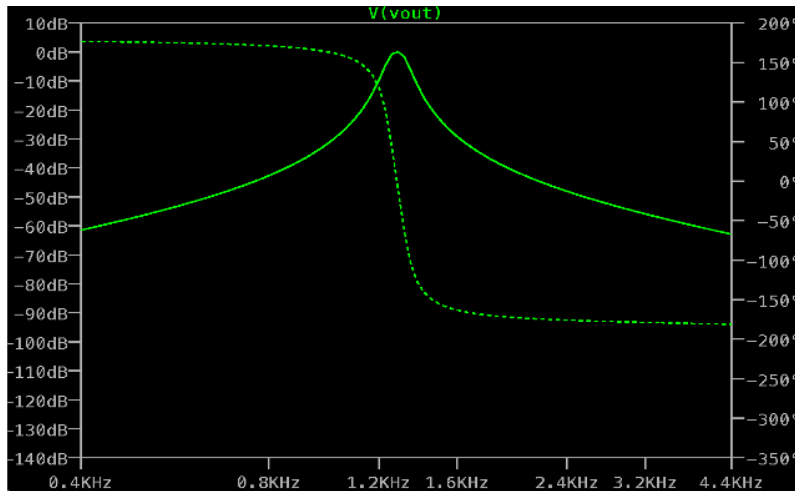

Figure 1: Frequency response of the active filter modeled in LTSpice. Notice how the caption is always below the figure.

2.1 Theoretical Calculations

Before implementing the design, we calculate the expected gain using the following transfer function:

$$A_v = -\frac{R_f}{R_{in}}$$

3 Results and Discussion

The experimental results should be displayed in this section. When comparing data, tables are often clearer than lists.

Table 1: Comparison of Theoretical vs. Measured Voltage

Theoretical (V)	Measured (V)
5.0	4.92
4.8	4.75
2.1	1.95

4 Conclusion

The conclusion should compare the experimental results (Table 1) to the theoretical results and explain any discrepancies. This section should also list any difficulties encountered during implementation (e.g., noisy signals, component tolerances) and describe the design's success.

A Code Snippets

If your lab involves programming , you can include your source code here using the `lstlisting` environment.

Listing 1: Sample Initialization Code

```
void setup() {
    // Initialize digital pin LED_BUILTIN as an output.
    pinMode(LED_BUILTIN, OUTPUT);
}
```