THE UNIVERSITY OF TEXAS AT ARLINGTON

COMPUTER SCIENCE AND ENGINEERIG

LABORATORY 2 REPORT

**ELECTRONICS LABORATORY**

Submitted toward the partial completion of the requirements for CSE 3323-002

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Date 9/14/2023

**Lab 2: Op Amp**

**Part 1:**

**Inverting Amp**

Circuit Diagram:

A diagram of a circuit

Description automatically generated

Findings:

|  |  |  |  |
| --- | --- | --- | --- |
| **F (kHz)** | **Vin (V)** | **Vout (V)** | **Gain (dB)** |
| 1 | 0.098 | 1 | 20.17548 |
| 2 | 0.098 | 1 | 20.17548 |
| 5 | 0.099 | 1 | 20.0873 |
| 10 | 0.1 | 1 | 20 |
| 15 | 0.1 | 1 | 20 |
| 17 | 0.1 | 0.984 | 19.8599 |
| 18 | 0.1 | 0.984 | 19.8599 |
| 19 | 0.1 | 0.984 | 19.8599 |
| 20 | 0.1 | 0.983 | 19.85107 |
| 40 | 0.1 | 0.8 | 18.0618 |
| 50 | 0.1 | 0.823 | 18.308 |
| 100 | 0.1 | 0.552 | 14.83878 |
| 200 | 0.1 | 0.3 | 9.542425 |
| 500 | 0.1 | 0.12 | 1.583625 |

At what input does the output distort?

The output distorts at around 17-20 kHz input frequency.

|  |  |
| --- | --- |
|  | **dBV RMS** |
| **H1** | 4.6 |
| **H3** | -30 |
| **H5** | -37 |
| **H7** | -57 |

Use the FFT mode on scope to observe the spectrum when this distortion happens.

H3 relative to H1 = -34.6 dBV RMS

H5 relative to H1 = -41.6 dBV RMS

H7 relative to H1 = -61.6 dBV RMS

Graph Sketch:

**Part 2:**

**Non-Inverting Amp**

Circuit Diagram:

**A diagram of a circuit

Description automatically generated**

Findings:

|  |  |  |  |
| --- | --- | --- | --- |
| **F (kHz)** | **Vin (V)** | **Vout (V)** | **Gain (dB)** |
| 1 | 0.12 | 1.16 | 19.70553 |
| 2 | 0.12 | 1.16 | 19.70553 |
| 5 | 0.11 | 1.16 | 20.46131 |
| 10 | 0.11 | 1.15 | 20.3861 |
| 15 | 0.11 | 1.14 | 20.31024 |
| 20 | 0.11 | 1.12 | 20.15651 |
| 30 | 0.11 | 1.08 | 19.84062 |
| 40 | 0.11 | 1 | 19.17215 |
| 45 | 0.11 | 0.99 | 19.08485 |
| 47 | 0.11 | 0.97 | 18.90758 |
| 49 | 0.11 | 0.96 | 18.81757 |
| 50 | 0.11 | 0.95 | 18.72662 |
| 100 | 0.11 | 0.61 | 14.87874 |
| 200 | 0.11 | 0.34 | 9.801725 |
| 500 | 0.11 | 0.13 | 1.451013 |

Graph Sketch: