

COMMUNICATION AND COMPUTER TECHNOLOGY

EEX3373

LAB 03 – PART 02

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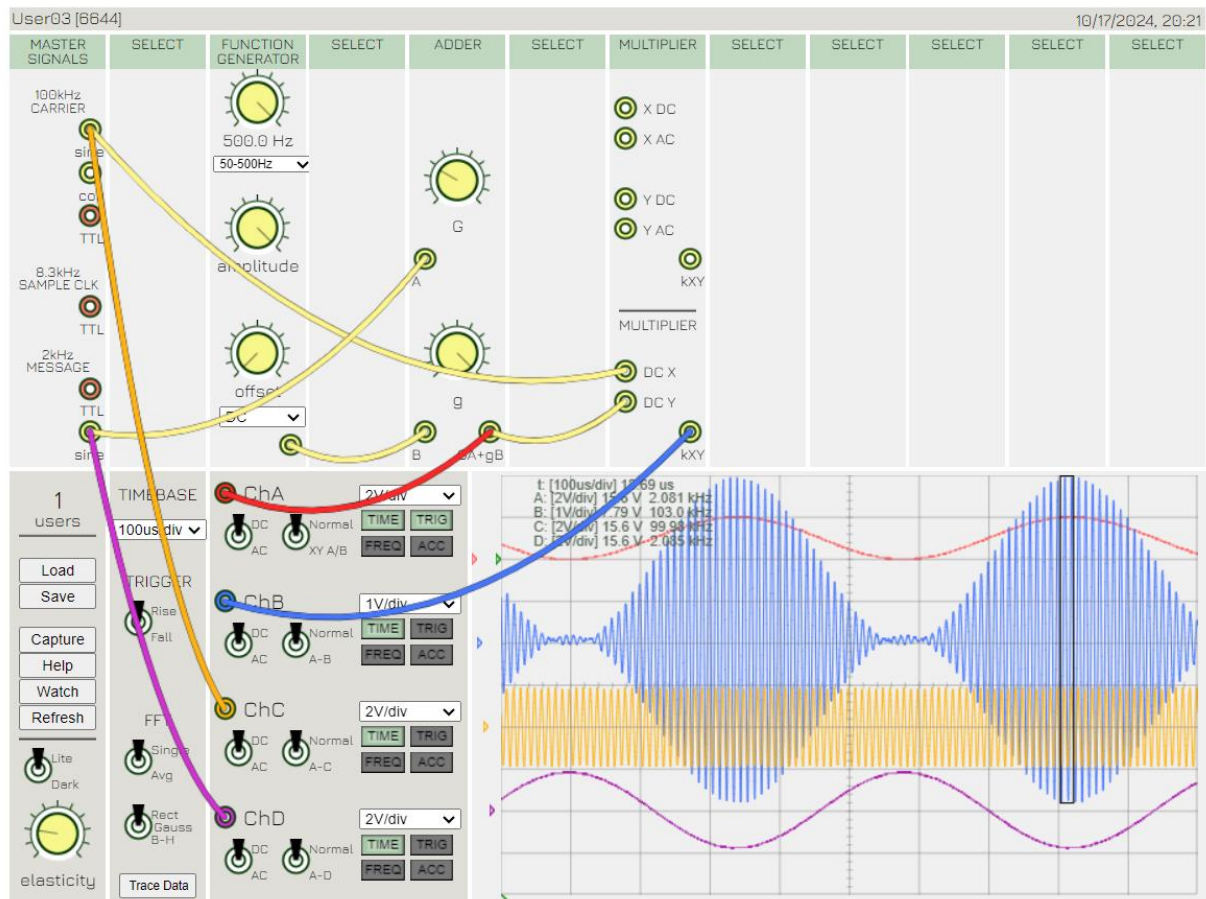
INTRODUCTION

- I am going to learn the principles of Pulse Width Modulation (PWM) and its applications.
- I am going to understand how to set up and operate an oscilloscope for signal analysis.
- I am going to study how to analyze signal distortions in modulated waveforms.

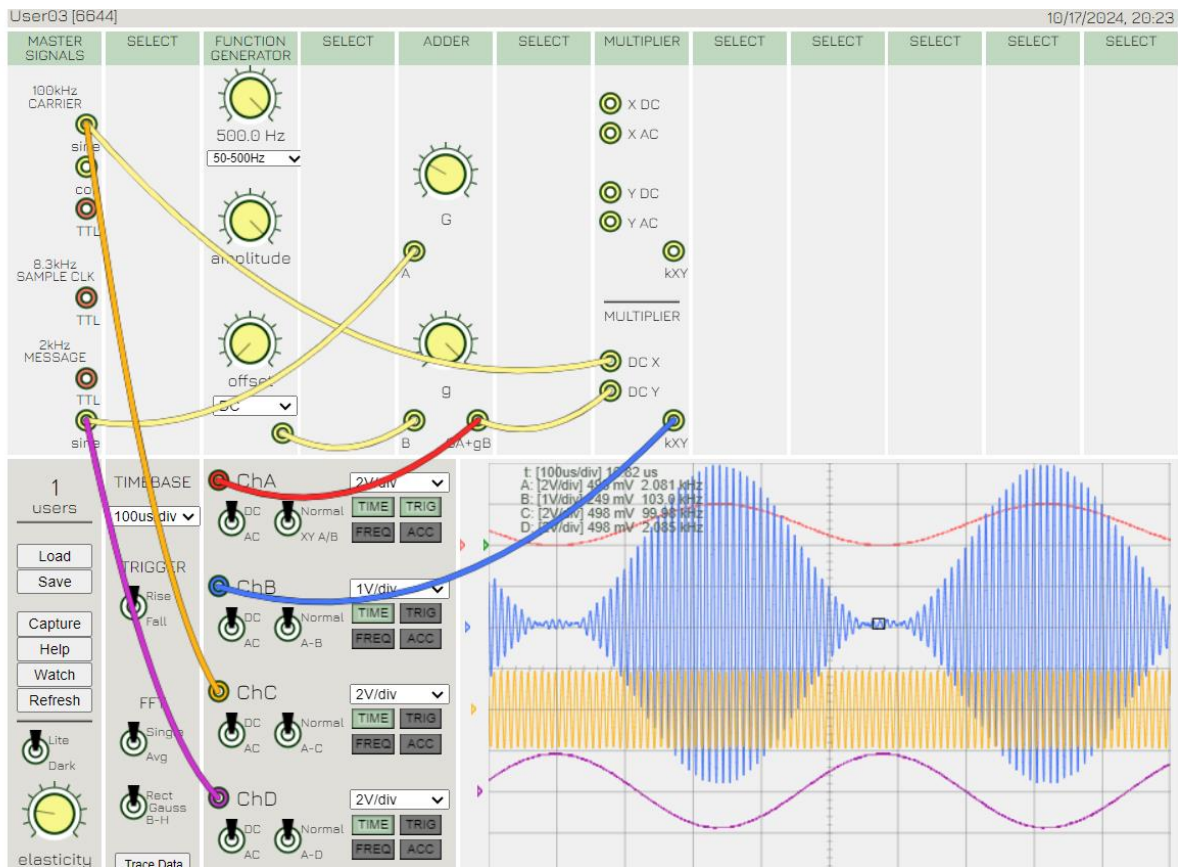
SCREENSHOTS

AM model

Maximum peak = 7.79V



Minimum peak = 249 mV



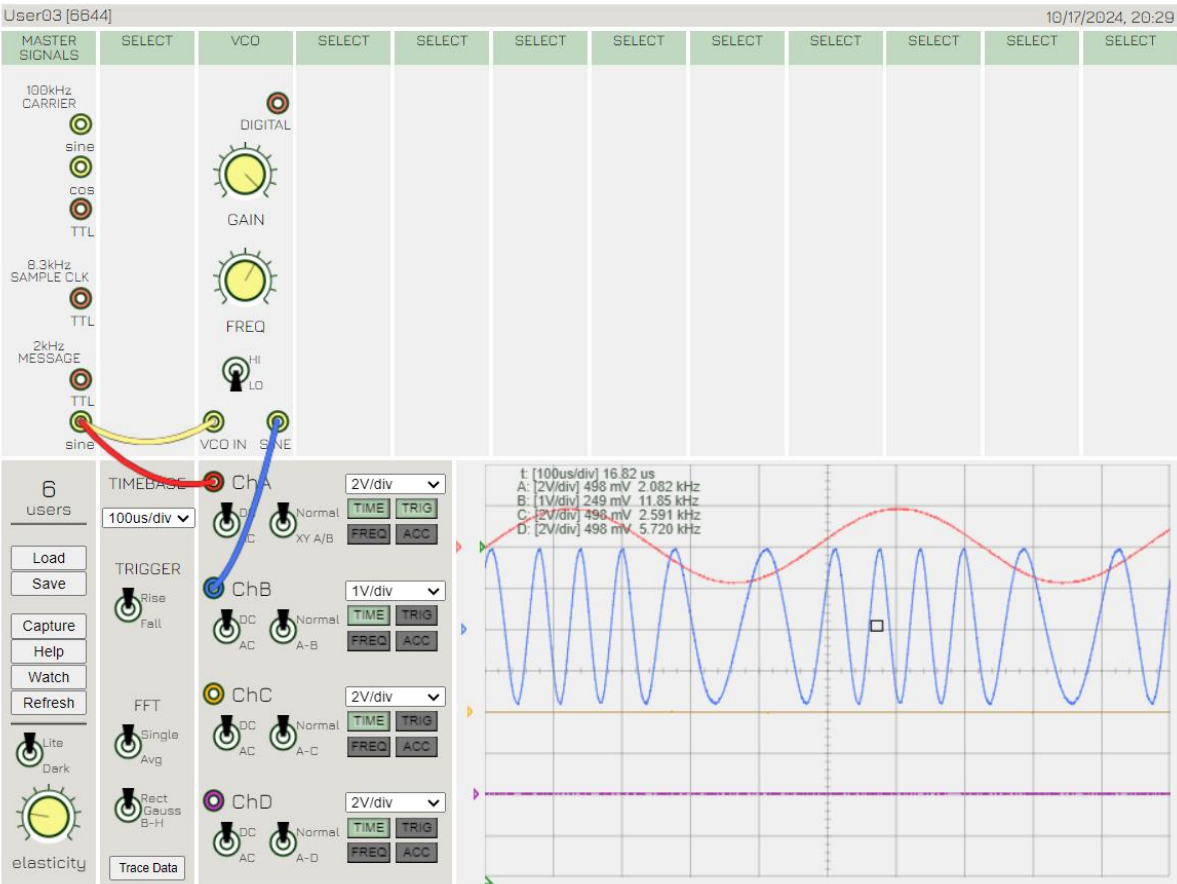
Amplitude modulation index (m) = $E_{\max} - E_{\min} / E_{\max} + E_{\min}$

$$= 7.79 - 0.249 / 7.79 + 0.249$$

$$= 7.541 / 8.039 = 0.93$$

No	E _{max} (V)	E _{min} (V)	m	M(%)
1	7.79V	0.249 V	0.93	93

The model of FM



Discussion

- I used the Emona netTIMS-FreeWire System to conduct experiments involving wireless signals.
- I explored various modules within the system, such as the Multiplier, Adder, Voltage Controlled Oscillator (VCO), Function Generator, and Master Signals, among others.
- Initially, I found it challenging to quickly grasp the connections and the input/output configurations in the netTIMS system.
- Understanding modulation-related calculations was also a bit difficult at first.
- However, after several attempts and further interactions, I became more comfortable with the netTIMS system.
- I discussed the calculation challenges with friends after the lab session to clarify doubts and improve my understanding.
- Through this lab, I learned how to practically modulate a signal and calculate the modulation index.
- Additionally, I became familiar with the TIMS system and its operation.