

COMMUNICATIONS LAB. Experiment 7 : Pulse Width Modulation / Demodulation

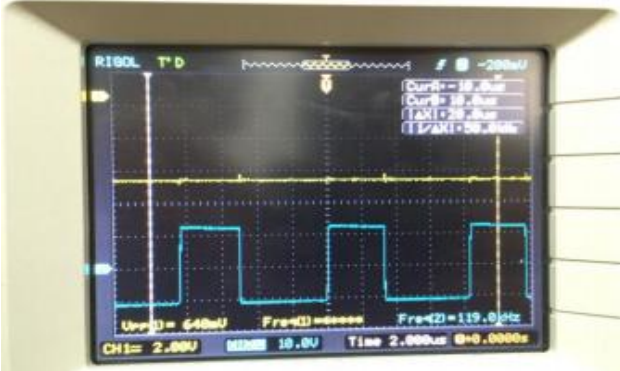
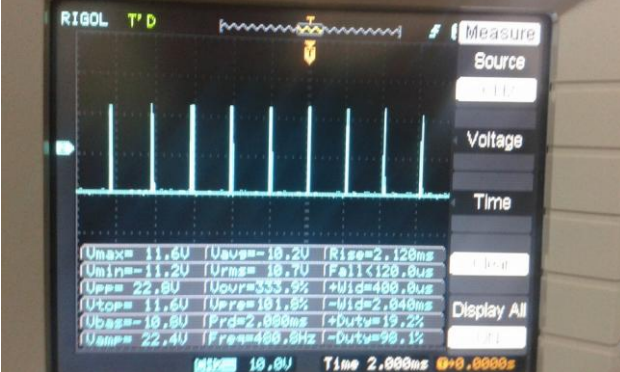
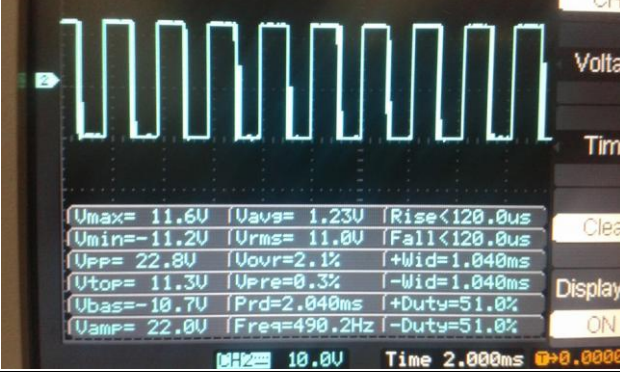

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NOTES / COMMENTS / PICTURES FROM YOUR EXPERIMENT

Show and clarify the results that you obtained during the experiment. You should use your notes taken during experiment and screenshots here. Add rows when you feel necessary to clarify your experiment.



Step	Oscilloscope display	Comments
c)		We have observed Vm and CLK of the PWM modulator of the oscilloscope. There are too many '1' values on the screen.
d)		We have been to connect "PMW output" to the oscilloscope and observed "Vm" and "PMW output" of the Pulse Width Modulation at same time. It was given -5V from DC supply. We should have observed the duty which is so small but we have observed duty=%19. It was a good result.
e)		It was given 0V from DC supply. We should have observed the duty which is 50% and we have observed duty=51%.
f)		It was given 5V from DC supply. We should have observed the duty which is big percent and we have observed duty=94%.

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g)		<p>We have observed the last three part in our experiment. We found this values:</p> <table><tr><td>Volt</td><td>-5V</td><td>0V</td><td>5V</td></tr><tr><td>Duty</td><td>19%</td><td>51%</td><td>94%</td></tr></table>	Volt	-5V	0V	5V	Duty	19%	51%	94%
Volt	-5V	0V	5V							
Duty	19%	51%	94%							
h)	< No need for display. Just write. >	<p>We found out so close values. Some of our parts have differences, which are not big deal. Actually real needs to same values. If everthing is available for experiment, it could be succesfully. thing was supposed to be:</p> <table><tr><td>Volt</td><td>-5V</td><td>0V</td><td>5V</td></tr><tr><td>Duty</td><td>0%</td><td>50%</td><td>100%</td></tr></table>	Volt	-5V	0V	5V	Duty	0%	50%	100%
Volt	-5V	0V	5V							
Duty	0%	50%	100%							
i)		<p>We have observed with different frequencies. In the first photo, frequency was so big and the other one, frequency is so small. we have observed that which different frequencies how to effect. This frequency different is clock frequency.</p>								
l)		<p>We have been obtain "Vm" and "PMW" output on the oscilloscope. At sinus max value, we have observed wide and at sinus min values, we have observed narrow 1s.</p>								

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n)		<p>We can do almost the same review which is part 1. . At max value, we have observed wide and at min values, we have observed narrow ls.</p>
o)		<p>We have been to connect PWM output to Pulse Width Demodulation input, then, connect CLK on the Modulator to CLK on the demodulator and observe “Vm” and “Vo” on the “CH1” and “CH2” of the oscilloscope.</p>
p)		<p>We got 3 graph. That is respectively -5V, 0V and 5V for photo 1,2 and 3.</p>

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q)		<p>We have adjusted the message signal to obtain a 50 Hz and 7 Vpp sinusoidal signal. And observed “Vm” and “Vo” on the “CH1” and “CH2” of the oscilloscope.</p>
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QUESTION

- 1- Can PWM be used to generate simple sounds from a programmed device? Explain.

PWM can be used to generate simple sounds from a programmed device that they work this job. This situation is very handled by a technique called PWM.

- 2- What is the function of “Clock” on the Pulse Width modulator and demodulator?

The function of ‘Clock’ is working to see outcome ones or zeros on the Pulse Width modulator and demodulator. Pulse-width modulation (PWM) is a signaling format that is commonly used by microcontrollers for communicating with certain types of peripherals.

CONCLUSION

Write down a brief comment and conclusion about the experiment.

We have learned digital modulation technique in PWM which the width of a pulse carrier is changed according to the instantaneous value of the information signal. We found out Duty Cycle values. We have observed when we called PWM.