BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT

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DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING

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REPORT

On

" Generation of AM wave and DSB-SC wave using Simulink"

Submitted By

USN	Name of the Student	Marks Awarded Max Marks: 05
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Signature of faculty		

Course: Principles of Communication Systems

Course Code: 18EC53

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AMPLITUDE MODULATION

- Amplitude modulation is the process by which amplitude of the carrier signal is varied in accordance with the amplitude of the input modulating signal.
- In AM, there is a modulating signal. This is also called an input signal or baseband signal. This is a low-frequency signal.
- There is high-frequency signal called carrier.
- The purpose of AM is to translate the low-frequency baseband signal to a higher frequency signal using the carrier.
- Let the modulating signal be,

$$m(t)=A_m\cos(2\pi f_m t)$$

and the carrier signal be,

$$c(t)=A_c\cos(2\pi f_c t)$$

Where,

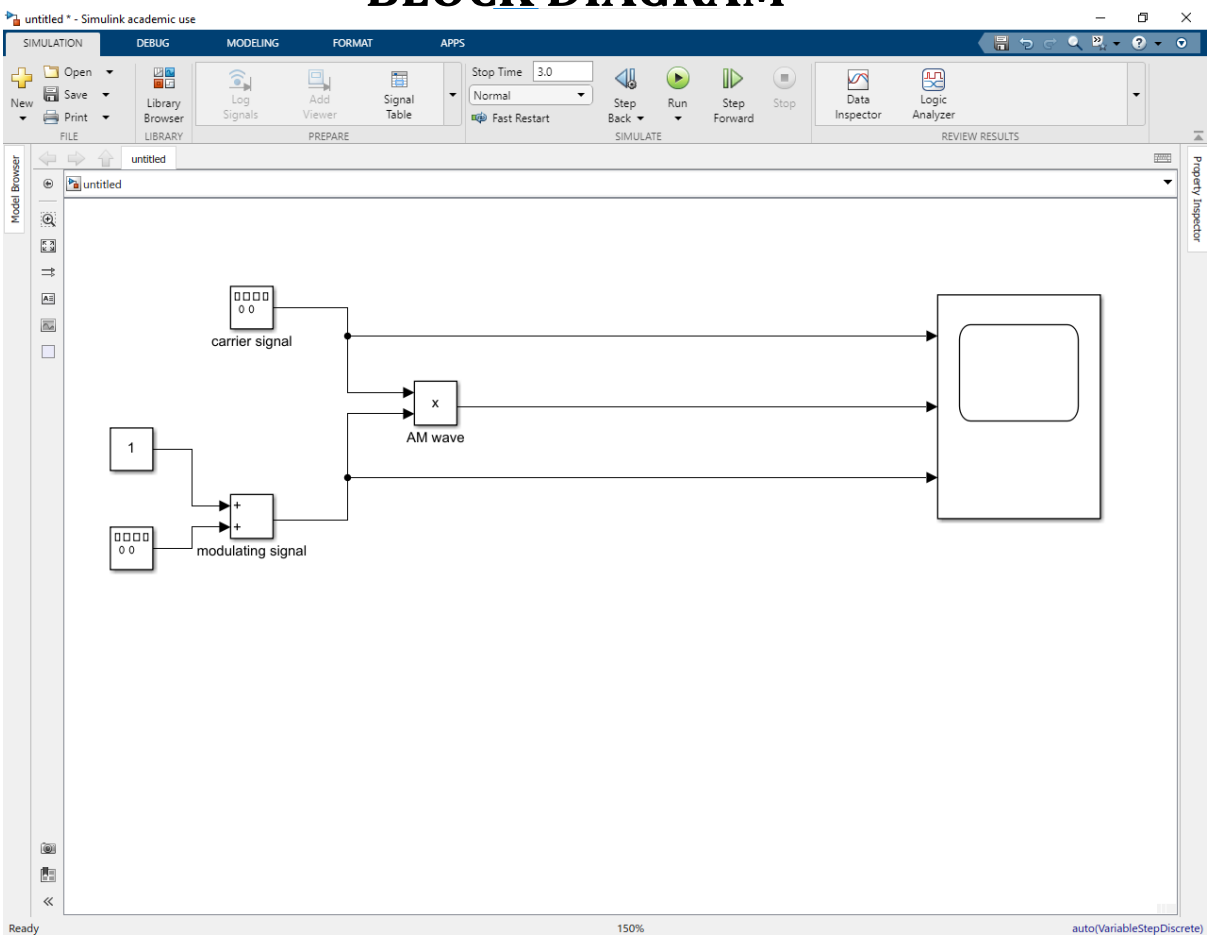
A_m and A_c are the amplitude of the modulating signal and the carrier signal respectively.

f_m and f_c are the frequency of the modulating signal and the carrier signal respectively.

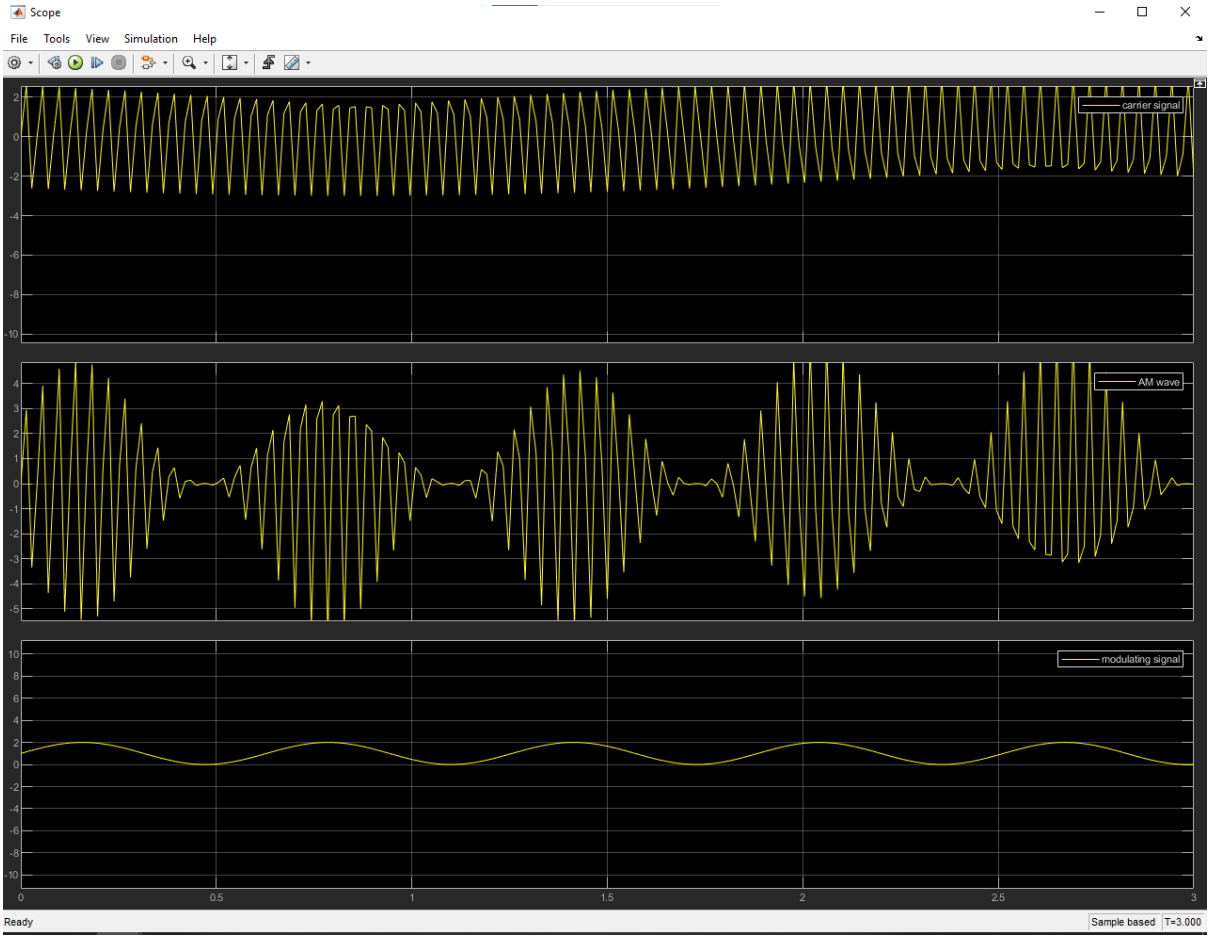
- Then, the equation of Amplitude Modulated wave will be

$$s(t)=[\ A_c +A_m\cos(2\pi\ f_m\ t)]\cos(2\pi\ f_c\ t)$$

BLOCK DIAGRAM



WAVEFORMS



DSB-SC (DOUBLE SIDEBAND SUPPRESS CARRIER)

- It is a type of Amplitude Modulation. It has two sidebands on both sides of the carrier frequency.
- The terms suppress means to remove. The suppressed carrier means to remove the carrier.
- Thus, DSB SC is a transmission that does not involve the carrier component at the output of the modulator.
- 'The transmission that produces two sidebands symmetric above and below the carrier frequency with the carrier reduced to the lowest possible level of frequency is known as Double Sideband Suppress Carrier transmission.'
- The power is distributed in its two sidebands because the absence of carrier results in no carrier power.
- Thus, the cover of DSBSC is more as compared to the Amplitude Modulation.
- However, the carrier signal is essential to recover the signal required during the demodulation.

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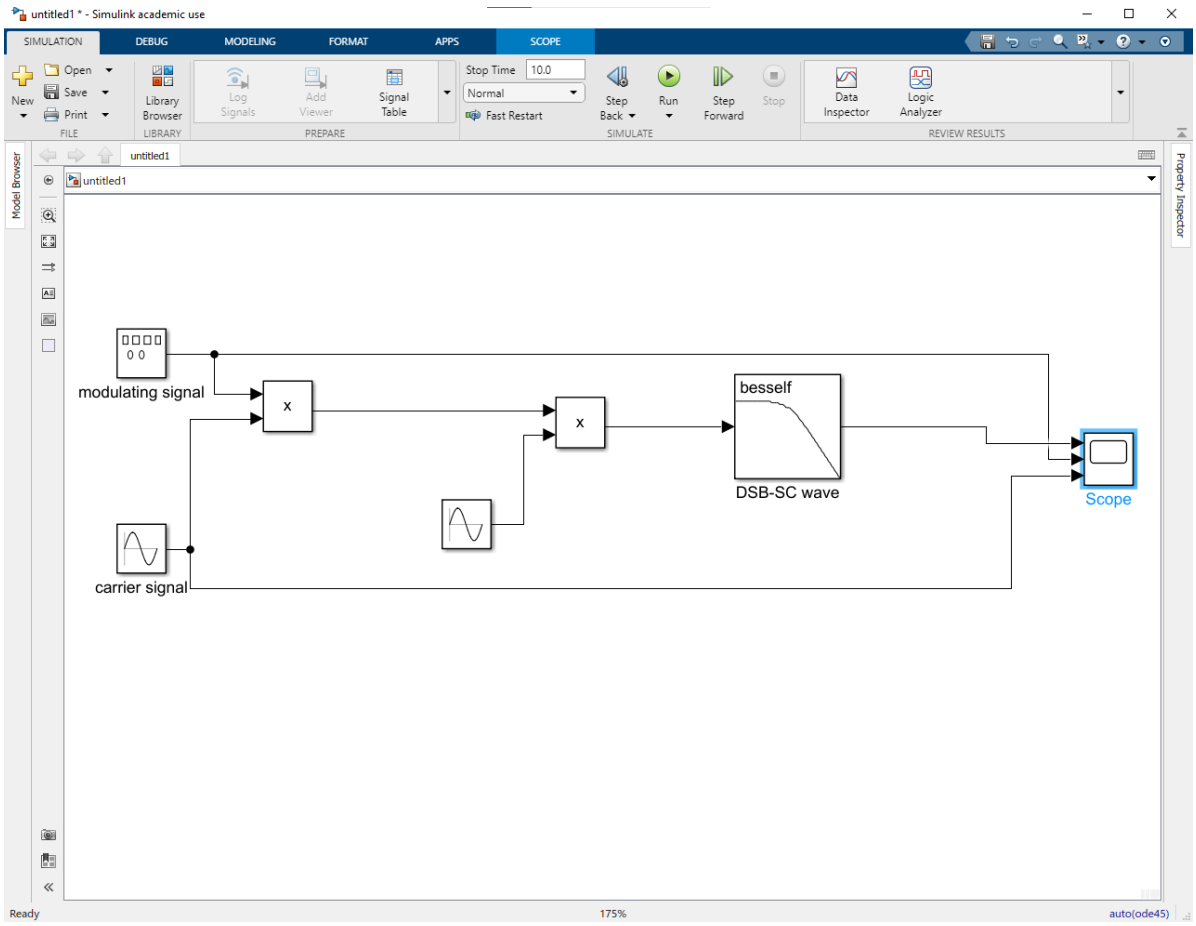

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