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**Wireless Communication - Assignment 1**

Modulation process math model:

* **Passband baseband**

 Lowpass filter 



 Lowpass filter 

To downconvert from passband to baseband, we consider:



Where:

-frequency is  denoted by: > W.

- and are real baseband signals of bandwidth at most W,

-first tern on the extreme right-hand is the I component , which is a baseband signal.

-Second and third terms are passband signals at ,can be removed by lowpass filtering.

* **Baseband passband**

 



 

To upconversion from Baseband to passband, we consider:

 

Where  may vary slowly with time.