Digital Communications Lab

**Experiment 2**

Handling noisy channels: Matched filters

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| **Section:** | 3 |

**EXP.** Complete PART 1-a in the experiment M-file Lab2\_script.m and the missing implementation of the functions GenerateSquarePulses. You should implement only the part corresponding to the unipolar case. After completing this part, insert the plots that were generated in the following table; it should be identical to the provided plot.

|  |  |
| --- | --- |
|  | **INSERT YOUR PLOT HERE** |

**EXP.** Complete PART 1-b in the experiment M-file Lab2\_script.m and the missing implementation of the functions AWGNChannel. After completing this part, insert the plots that were generated in the following table; it should be similar to the provided plot.

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|  | **INSERT YOUR PLOT HERE** |

**EXP.** Complete PART 1-c in the experiment M-file Lab2\_script.m. After completing this part, insert the plots that were generated in the following table; it should be similar to the provided plot.

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|  | **INSERT YOUR PLOT HERE** |

**EXP.** Complete PART 2-a in the experiment M-file Lab2\_script.m and the function MatchedFilter. After completing this part, insert the plots that were generated in the following table; it should be identical to the provided plot.

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|  | **INSERT YOUR PLOT HERE** |

**EXP.** Complete PART 2-b in the experiment M-file Lab2\_script.m by completing the function MatchedFilter.

**EXP.** Complete PART 2-c in the experiment M-file Lab2\_script.m. After completing the experiment, write the BER value you computed in the following table.

|  |  |
| --- | --- |
| For equal to 0 dB, the BER value is equal to: | WRITE YOUR ANSWER HERE  0.1631 |

**EXP.** Complete PART 3-a in the experiment M-file Lab2\_script.m and the function GenerateSquarePulses. After completing this part, insert the plots that were generated in the following table; it should be identical to the provided plot.

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| --- | --- |
|  | **INSERT YOUR PLOT HERE** |

**EXP.** Complete PART 3-b in the experiment M-file Lab2\_script.m and the function MatchedFilter. After completing this part, insert the plots that were generated in the following table; it should be identical to the provided plot.

|  |  |
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|  | **INSERT YOUR PLOT HERE** |

**EXP.** Complete PART 3-c in the experiment M-file Lab2\_script.m by completing the function MatchedFilter.

**EXP.** Complete PART 3-d in the experiment M-file Lab2\_script.m. After completing the experiment, write the BER value you computed in the following table.

|  |  |
| --- | --- |
| For equal to 0 dB, the BER value is equal to: | WRITE YOUR ANSWER HERE  0.0883 |

**EXP.** Complete PART 4 in the experiment M-file Lab2\_script.m. After completing the experiment, write the BER value you computed in the following table. After completing this part, insert the one plot that was generated in the following table.

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| **INSERT YOUR PLOT HERE** |