



Laboratory: Massey Algorithm

1 Objective

Objective of the lab: The objective of this lab is to provide an opportunity for the student to familiarise him- or herself with calculations in Galois Field and using the Massey algorithm to get error locations of received Reed-Solomon codewords.

2 Requirements

Note: This lab requires some preparation, in terms of theoretical background as well as the use of the tools (use of the D-Lab, Matlab, the m-files, etc.). Students who are unable to do the lab because they have not prepared will be asked to leave.

Instructions, source material and preparation required:

- You are required to do all the preparation needed to implement the algorithms beforehand.
- Lab partners may operate in groups of two (and no larger) and may help each other during the lab but each should use his/her own unique input in all the exercises and write his/her own lab report.

Report: The report will take the form of the following group of files which should all be attached to a single email:

- An answer sheet (in Word or PDF format) with your name and your lab partner's name and student numbers, the date and experiment number, and your results obtained for the various questions. Also include in your report a flow diagram of the algorithm. Remember to include all your references.
- All the m-files created to execute the lab.

3 Outcomes

The following functions must all be implemented such that they can be used for any (n, k) Reed-Solomon code.

1. Implement a function that can calculate the syndromes of a received Reed-Solomon codeword according to Step 1 described on page 2-10 (hand-out 1).
2. Implement a function that performs the Massey algorithm as described in Step 3 on page 2-11 (hand-out 1).
3. Use your calculation result of the Question 4 in Tutorial 4 to check if the above two functions are working properly.