

Department of Electrical & Electronic Engineering

ELEC97094/ELEC97095 Wireless Communications

Evaluation Form - Coursework 2

Name of Student: Zhaolin Wang

Name of Assessor: Date of Assessment:

**Report (100%) Overall Coursework Grade: A+**

1. Q1.1 (10%)

A\* ☐ A ☐ B ☐ C ☐ D ☐ E ☐

1. Q1.2 (10%)

A\* ☐ A ☐ B ☐ C ☐ D ☐ E ☐

1. Q1.3 (10%)

A\* ☐ A ☐ B ☐ C ☐ D ☐ E ☐

1. Q1 explanations and contrast with the theory (10%)

A\* ☐ A ☐ B ☐ C ☐ D ☐ E ☐

1. Q2 (10%)

A\* ☐ A ☐ B ☐ C ☐ D ☐ E ☐

1. Q2 explanations and contrast with the theory (10%)

A\* ☐ A ☐ B ☐ C ☐ D ☐ E ☐

1. Q3.1 (10%)

A\* ☐ A ☐ B ☐ C ☐ D ☐ E ☐

1. Q3.2 (10%)

A\* ☐ A ☐ B ☐ C ☐ D ☐ E ☐

1. Q3.3 (10%)

A\* ☐ A ☐ B ☐ C ☐ D ☐ E ☐

1. Q3 explanations and contrast with the theory (10%)

A\* ☐ A ☐ B ☐ C ☐ D ☐ E ☐

**Comments:**

Q1

Fantastic analysis. Good job.

Q2

Very good.

Q3

The complexity of ML receiver is not explained. With a constellation of size N, the size of the code book is nt^N, which is not practical for large nt.

You could specify that the output of ZF receiver are decoupled symbols without interference to each other, and can be estimated independently using scalar ML decoding, which is more efficient than joint ML decoding. Thus, detection complexity is significantly reduced. You could also specify that the ZF receive diversity is not fully exploited because nt-1 dimensions from the receiver are used to get rid of interference. Another drawback of ZF is the noise enhancement.

Correct simulations results. All simulations are inline with the theory.