**Properties:**

Postcondition testing

1. Check that the measurement in the Z basis after encoding, returns the output of one of the bell states. We expect to measure the output sets to be either, {11,00} and {01,10}, for each message we encode.
2. Check that the decoded message is equal to the message that was encoded

**Properties: (new)**

1.

Precondition:

A quantum circuit with a bell pair: qc

two bit binary message to encode: M  
Operation:

encodeMessage(qc, M) (measure on Z basis and record 10000 shots: Res[10000])

Output:

AssertTrue(Res[0],…,Res[10000] = {00,11} OR Res[0],…,Res[10000] = {01,10} )

(We check that the bell states are being encoded correctly)(can probably check for phase)

2.

Precondition:

A quantum circuit with a bell pair: qc

two bit binary message to encode: M  
Operation:

encodeMessage(qc, M)

Output:

assertEqual(decodeMessage(qc), M)