EN1094 Laboratory Practice
Telecommunication - Workshop 2 Task Sheet

Index No.: 220067G, 220071M   **Group No.:** A6

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Task 1.

The lower amplitudes have dissappeared in the signal at receiver due to attenuation.
There are some spikes at some places in waveform due to the channel noise.

Task 2.

Original audio signal is a baseband signal.
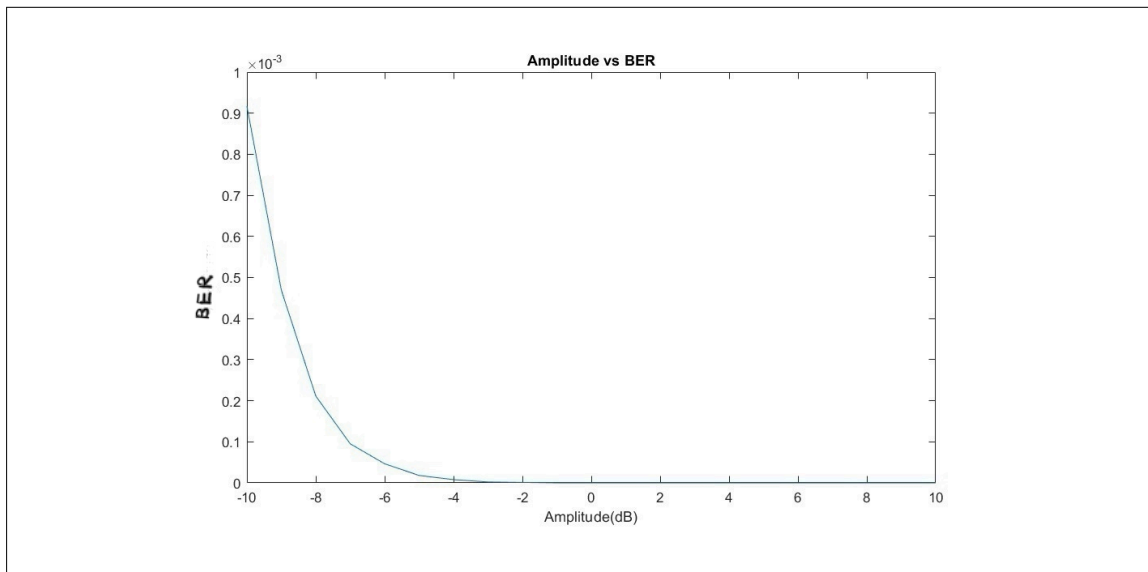Received signal is a bandpass signal as its high amplitudes are around the frequency range 300kHz.

Task 3.

```
% BER = no. of error bits / no. of total bits
BER = sum(bit_stream ~= decoded_bit_stream) / length(bit_stream);
```
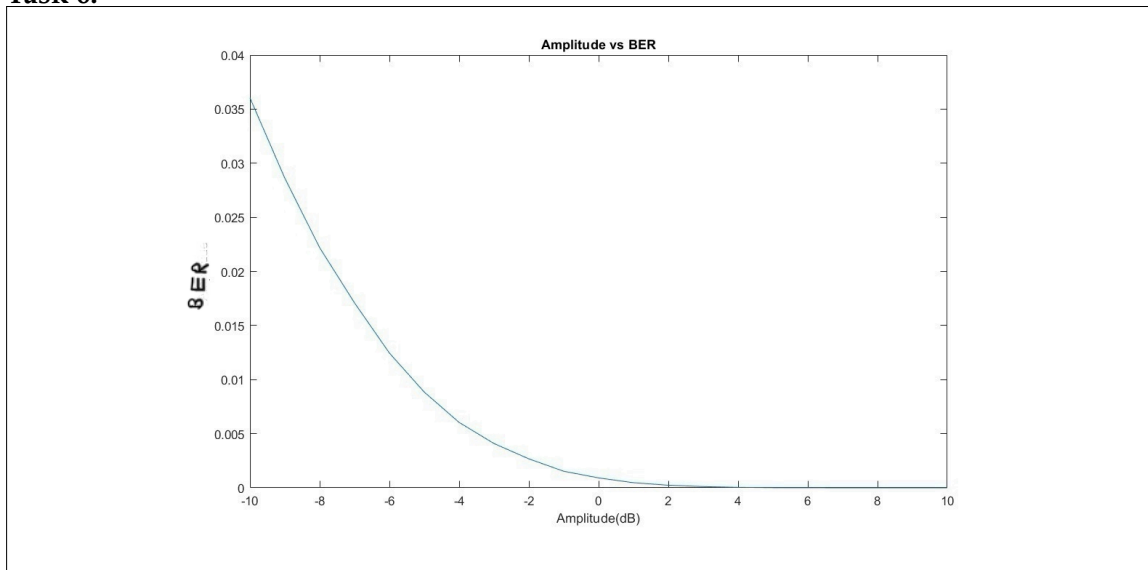
Task 4.

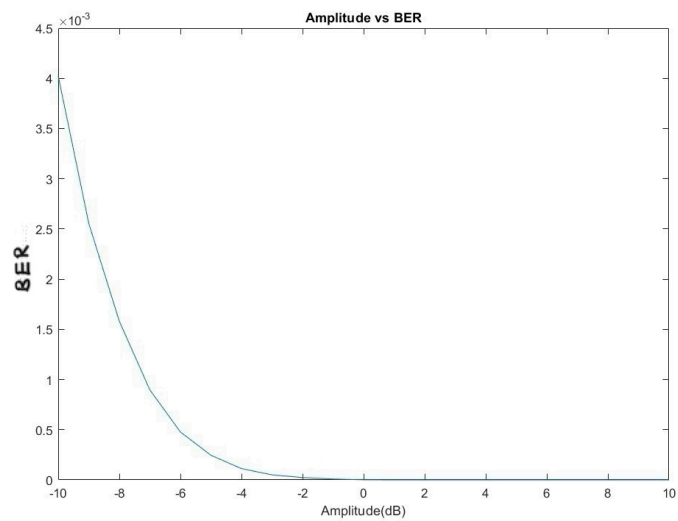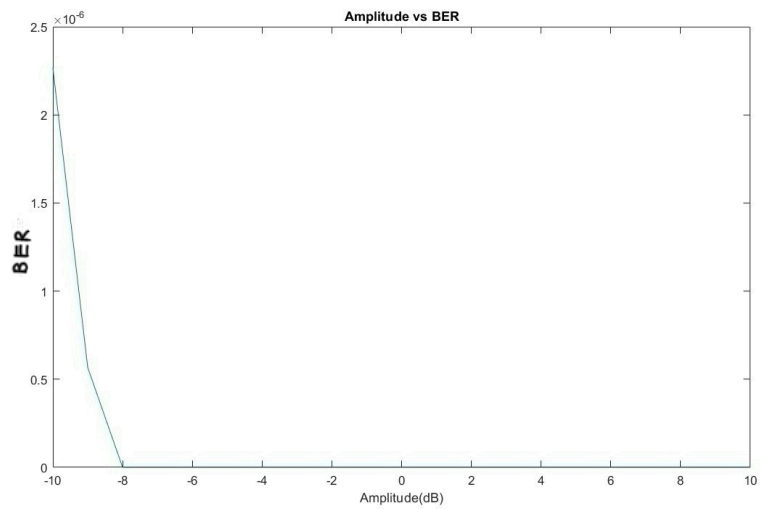$BER = 1.3035 \times 10^{-5}$

Task 5.

Task 6.

Task 7.

In the second graph BER is higher. This is due to phase difference is changed from π to $\pi/2$.
When the phase difference decreases impact of noise and attenuation on signal increases. So it causes more error bits.

Task 8.

BER = 0 :)

Task 9.

Amplitude vs BER

Amplitude vs BER

Task 10.

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we can observe that in both cases with phase1 = 0 and phase1 = $\frac{\pi}{2}$ BER has reduced after applying Error correction Mechanism. So using the error correction mechanism improves BER.

Task 11.

The scheme adds redundancy bits to improve BER. So we have to transfer more data which takes longer time for transmission. Moreover decoding becomes more complex and need more processing power and time.