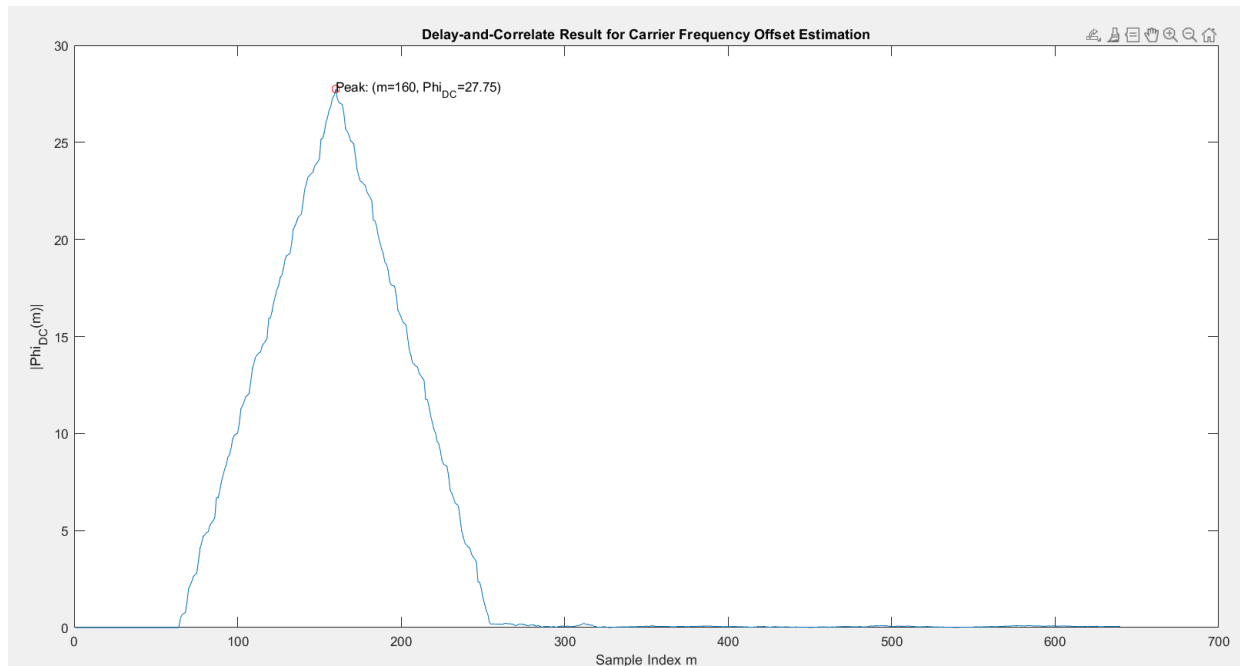


Digital Communication IC Design

HW5

r13943124 施伯儒

1.
(a)

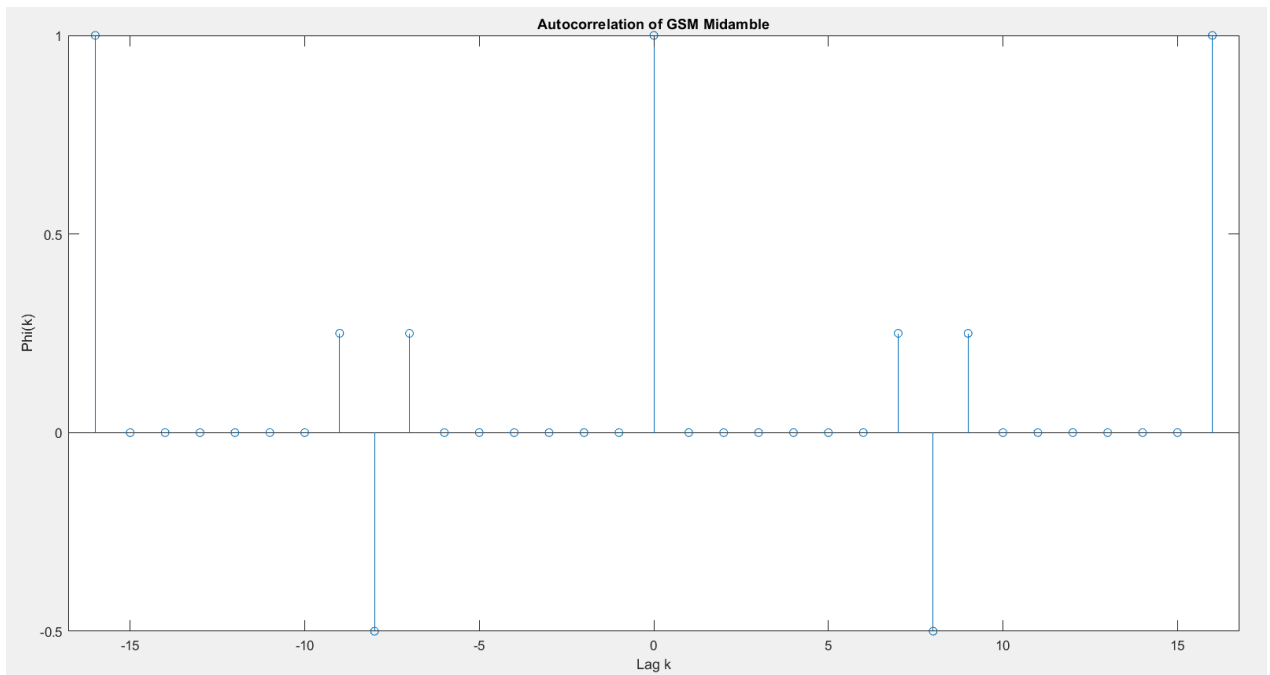


(b)
max_index occurs at n=160, value = 27.75
(c)

```
>> answer1  
The maximum correlation occurs at m = 160  
Estimated epsilon: -0.3000
```

因為有IFO無法被估計到，這個估計結果不足以反映整體的CFO

2.



3.

(a)

因為只有這個範圍才沒有使用到user data, 全部只用midamble

```
% (a)
```

```
m_start = 65;
```

```
m_end = 86;
```

(b)

sequence used for autocorrelation is:

```
1    -1    1    -1    -1    -1    1    1    1    1    -1    1    1    1    -1    1
```

(h0 to h4) estimated channel response is:

```
0.1956 + 0.0945i
```

```
-0.5807 - 0.5242i
```

```
0.1625 - 0.2710i
```

```
0.4381 - 0.1114i
```

```
0.0202 + 0.1903i
```

```
si = [ 1 -1 1 -1 -1 -1 1 1 1 1 -1 1 1 1 -1 1 ]
```

h0 -> zm's index: 65~80

h1 -> zm's index: 66~81

h2 -> zm's index: 67~82

h3 -> zm's index: 68~83

h4 -> zm's index: 69~84

get:

h0 = 0.1956 + 0.0945i

h1 = -0.5807 - 0.5242i

h2 = 0.1625 - 0.2710i

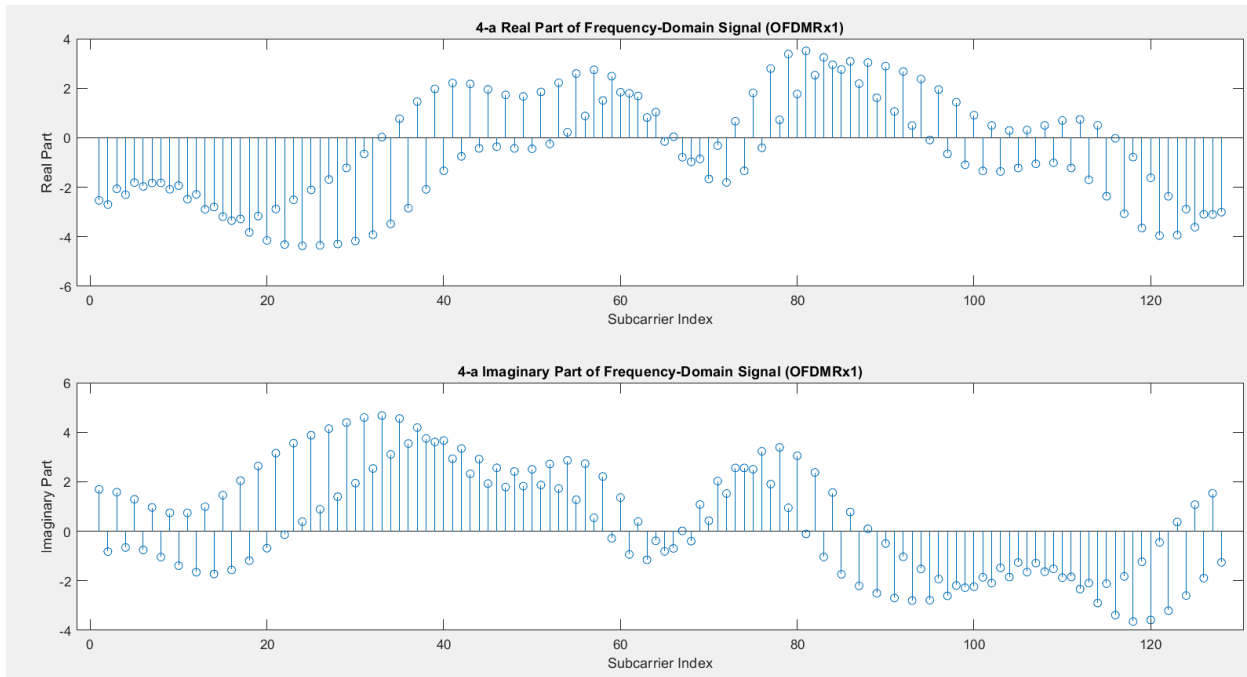
h3 = 0.4381 - 0.1114i

h4 = 0.0202 + 0.1903i

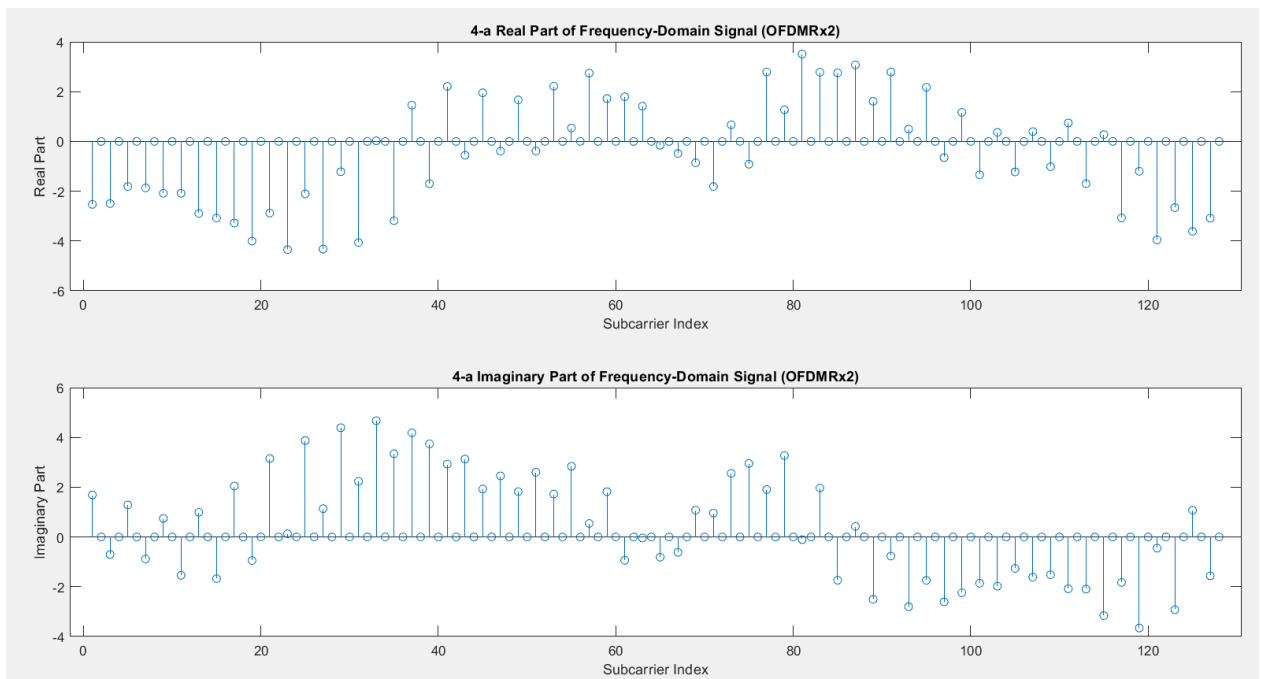
4.

(a)

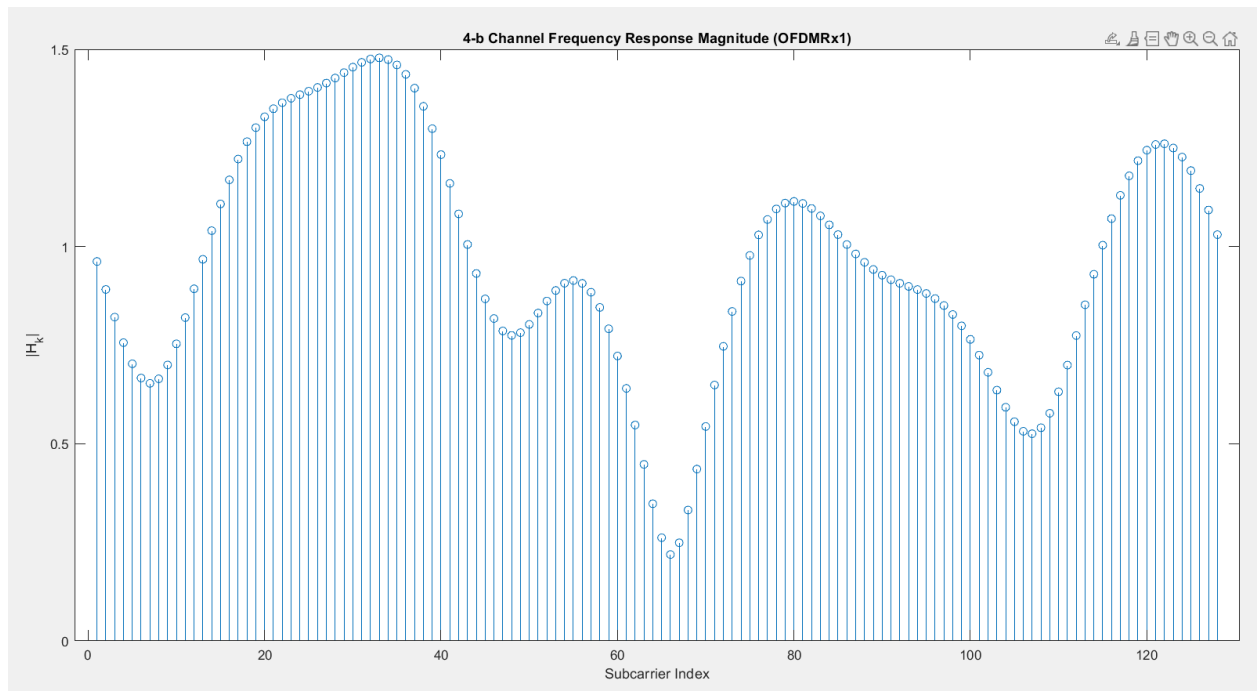
x1



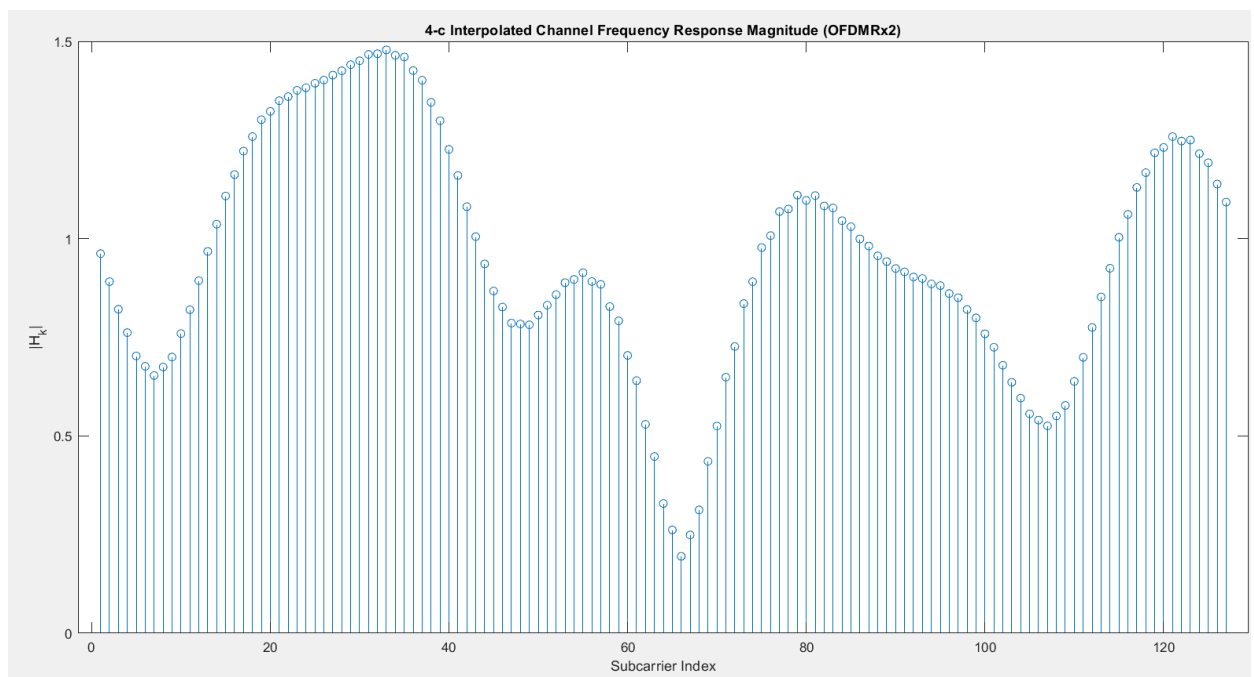
x2



(b)



(c)



(d)
difference is:

