Lab-Comm. Lab5 Report

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許博凱

1. Exercise
2. I use the C++ code to simulate all of the modulation, including QAM16 PSK8 and BPSK.

For the bmp file, we transmit the first 54 byte as header and the file can be opened even the channel is dirty.

However, for the jpg and gif file, even transmitting more byte as header beginning from the file, the file still cannot be opened.

For the eps file, the file always cannot be opened, so I don’t show the result of eps file.

Show the Graph simulation result with different BER：

The BER = 10^-5

|  |  |  |  |
| --- | --- | --- | --- |
|  | BPSK | 8PSK | 16QAM |
| Bmp |  |  |  |
| Jpg |  |  |  |
| gif |  |  |  |

The BER = 10^-3

|  |  |  |  |
| --- | --- | --- | --- |
|  | BPSK | 8PSK | 16QAM |
| Bmp |  |  |  |
| Jpg |  |  |  |
| Gif |  |  |  |

The BER = 10^-2

|  |  |  |  |
| --- | --- | --- | --- |
|  | BPSK | 8PSK | 16QAM |
| Bmp |  |  |  |
| Jpg |  |  |  |
| Gif |  |  |  |

The BER = 10^-1

|  |  |  |  |
| --- | --- | --- | --- |
|  | BPSK | 8PSK | 16QAM |
| Bmp |  |  |  |
| Jpg |  |  |  |
| Gif |  |  |  |

1. Show the Graph simulation result with different BER：

To analysis the sound quality, we count the “different square” value

Define:

Different square := (sound – handel)\* (sound – handel)’

Which is the same with norm of | sound – handel |^2







1. Problems and solution
2. To construct my C++ modulation code, I use the inheritance skill to let three kind of modulation inheriting to the same class named “modul”. And the “simuModul” class will call the virtual function of “modul” class. However, in my “modul” class, there is the template function cannot be virtual. So I need to set it in three derive classes so that it can run successfully.
3. Discussion
4. BPSK and QAM16 is better than PSK8 from the result of sound analysis.

We can see the different square of PSK8 is higher the others.