

RAKE receiver

Here is how I do the RAKE receiver in matlab file

Path search

Since perfect knowledge of the channel.

I assume receiver already know which channel carried signal

I just select the delay of pseudo-random sequence for [1] and [0,0,0,0,0,1]

DeSpread

Apply the pseudo-random sequence

Delay the sequence with [1] and [0,0,0,0,0,1] by using the filter function.

Do Integration

Do the Integration for each original symbol length.

I use the mean() to do Integration for each 64 value

MRC

Apply attenuation for MRC

Apply the gain of channel as attenuation for MRC before the Integration

Combine the signal

Hard decision decoding

Theoretical SER.

Because the spread the symbol through the 64 times.

So the SNR of DSSS should lower 64 times after spread.

I compute shifted EBNO in my matlab file

For the no fading channel

I use AWGN formula.

For the fading channel

I use the 2 branch MRC formula.

And 4 branch MRC formula.