#Jenny

Finally I get this ebook, thanks for all these I can get now!

#Rio

Cool! I'am really happy

#Markus Jensen

I did not think that this would work, my best friend showed me this website, and it does! I get my most wanted eBook

#Hun Tsu

wtf this great ebook for free?!

#Che Salsa

My friends are so mad that they do not know how I have all the high quality ebook which they do not!

#Diego Butler

so many fake sites. this is the first one which worked! Many thanks

(c) $\overline{P_e} = \int_0^\infty P_e(\gamma_b) f(\gamma_b) d\gamma_b$

$= \int_0^\infty \alpha_m Q(\sqrt{\beta_m \gamma_b}) f(\gamma_b) d\gamma_b$

Using alternative Q form

$= \frac{\alpha_m}{\pi} \int_0^{\frac{\pi}{2}} \left(1 + \frac{\beta_m}{\sin^2\theta}\right)^{-1} d\phi$ with $g = \frac{\beta_m}{2}$

$= \frac{\alpha_m}{2} \left[1 - \sqrt{\frac{g}{1+g}}\right] = 1 - \sqrt{\frac{\beta_m/2}{1+\beta_m/2}} = \frac{\alpha_m}{2}$, where we have used an integral table to evaluate the integral

(d) $P_b = \frac{P_e}{k}$

(e) BPSK: $\overline{P_b} = \frac{1}{2\bar{\gamma}_b} = 10^{-3} \Rightarrow \bar{\gamma}_b = 250$, 16PSK: From above get $\bar{\gamma}_s = 3289.5$

Penalty $= \frac{3289.5}{250} = 11.2dB$

Also will accept $\gamma_b(16PSK) = 822 \Rightarrow = 5.2dB$

14.

$$\overline{P_b} = \int_0^\infty P_b(\gamma) p(\gamma) d\gamma$$

$$P_b(\gamma) = \frac{1}{2} e^{-\gamma}$$

$$\overline{P_b} = \frac{1}{2} \int_0^\infty e^{-\gamma} p_\gamma(\gamma) d\gamma = \frac{1}{2} M$$

But from 6.65

$$M_\gamma(s) = \left(1 - \frac{s\bar{\gamma}}{m}\right)^{-m}$$

$$\therefore \overline{P_b} = \frac{1}{2}\left(1 + \frac{\bar{\gamma}}{m}\right)^{-m}$$

For $M = 4$, $\bar{\gamma} = 10$

$$\overline{P_b} = 3.33 \times 10^{-3}$$

15.

```
%Script used to plot the average probability of bit error for BPSK modulation in
%Nakagami fading m = 1, 2, 4.
%Initializations
avg_SNR = [0:0.1:20]; gamma_b_bar = 10.^(avg_SNR/10); m = [1 2 4];
line = ['-k', '-r', '-b']

for i = 1:size(m,2)
   for j = 1:size(gamma_b_bar, 2)
      Pb_bar(i,j) = (1/pi)*quadl('nakag_MGF',0,pi/2,[],[],gamma_b_bar(j),m(i),1);
   end
   figure(1);
   semilogy(avg_SNR, Pb_bar(i,:), line(i));
   hold on;
end

xlabel('Average SNR ( gamma_b ) in dB'); ylabel('Average bit error
probability ( P_b ) '); title('Plots of P_b for BPSK modulation in
Nagakami fading for m = 1, 2, 4'); legend('m = 1', 'm = 2', 'm =
4');
```

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