Unit 5 - Wireless Channel Characterization - Delay Spread and Doppler

Assignment-4

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-09-25, 23:59 IST.

1) Consider an $L = 5$ component multipath wireless channel with components arriving at 0 μs, 2 μs, 3 μs, 6 μs, 8 μs and respective powers of components as $-10\ dB$, $-20\ dB$, $0\ dB$, $-10\ dB$, $-20\ dB$. What are the Maximum and RMS delay spreads of the wireless channel? *1 point*

- 8 μs, 3.032 μs
- 6 μs, 1.299 μs
- 6 μs, 3.032 μs
- 8 μs, 1.299 μs

No, the answer is incorrect.
Score: 0
Accepted Answers:
8 μs, 1.299 μs

2) When symbol time is much smaller than the delay spread, the resulting wireless channel is known as *1 point*

- Flat Fading
- Frequency Selective Fading
- Fast Fading
- Rayleigh Fading

No, the answer is incorrect.
Score: 0
Accepted Answers:
Frequency Selective Fading

3) Consider a channel with coherence bandwidth $= 700\ KHz$. The delay spread of this channel is approximately equal to *1 point*

- 1.43 μs
- 0.714 μs
- 2.86 μs
- 1.86 μs

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.43 μs

4) Frequency selective distortion occurs in a wireless channel when *1 point*

- Delay spread is smaller than coherence time
- Signal Bandwidth is lower than coherence bandwidth
- Coherence bandwidth is lower than signal bandwidth
- Coherence time is smaller than symbol time

No, the answer is incorrect.
Score: 0
Accepted Answers:
Coherence bandwidth is lower than signal bandwidth

5) Frequency selective fading in a wireless channel leads to *1 point*

- Multipath Interference
- Doppler Shift
- Inter Symbol Interference
- Time Varying Channel

No, the answer is incorrect.
Score: 0
Accepted Answers:
Inter Symbol Interference

6) Consider a mobile user moving with velocity 90 *kmph* at carrier frequency 2.5 GHz and an angle of 45°. The coherence time of the channel is *1 point*

- 3.38 *ms*
- 1.69 *ms*
- 0.85 *ms*
- 2.1 *ms*

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.69 *ms*

7) The Doppler spread of a wireless channel arises due to *1 point*

- Mobility
- Multipath Propagation
- High Transmit Power
- Large Propagation Distance

No, the answer is incorrect.
Score: 0
Accepted Answers:
Mobility

8) Consider an $L = 4$ component multipath wireless channel with components arriving at 0 μs, 1 μs, 3 μs and 5 μs and respective powers of components as $-10\ dB$, $-20\ dB$, $0\ dB$ and $-10\ dB$ respectively. What is the RMS delay spread of the wireless channel *1 point*

- 0.85 μs
- 1.05 μs
- 0.95 μs
- 1.15 μs

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.05 μs

9) Coherence Bandwidth is approximately equal to *1 point*

- $\frac{1}{T_d}$, where T_d is the delay spread
- $\frac{1}{P}$, where P is the transmit power
- Bandwidth B allocated for communication
- $\frac{1}{(2\times f_d)}$, where f_d is the Doppler spread

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\frac{1}{T_d}$, *where T_d is the delay spread*

10) Coherence Time is approximately equal to *1 point*

- $\frac{1}{(2\times T_d)}$, where T_d is the delay spread
- $\frac{1}{P}$, where P is the transmit power
- Bandwidth B allocated for communication
- $\frac{1}{(4\times f_d)}$, where f_d is the Doppler spread

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\frac{1}{(4\times f_d)}$, *where f_d is the Doppler spread*