

Introduction to Wireless Networking Concepts

<p>Which of the following accurately describes the goal of RF technology?</p> <p>a. To send as much data as far as possible and as fast as possible</p> <p>b. To send secure data to remote terminals</p> <p>c. To send small amounts of data periodically</p> <p>d. To send data and voice short distances using encryption</p>	A
<p>Which of the following is a significant problem experienced with wireless networks?</p> <p>a. Infection</p> <p>b. Policing</p> <p>c. Transmission</p>	D
<p>Which two of the following are unlicensed frequency bands used in the United States? (Choose two.)</p> <p>a. 2.0 MHz</p> <p>b. 2.4 GHz</p> <p>c. 5.0 GHz</p> <p>d. 6.8 GHz</p>	B and C
<p>Each 2.4-GHz channel is how many megahertz wide?</p> <p>a. 22 MHz</p> <p>b. 26 MHz</p> <p>c. 24 MHz</p> <p>d. 28 MHz</p>	A
<p>How many nonoverlapping channels exist in the 2.4-GHz ISM range?</p> <p>a. 9</p> <p>b. 3</p> <p>c. 17</p> <p>d. 13</p>	B
<p>The 5.0-GHz range is used by which two of the following 802.11 standards? (Choose two.)</p> <p>a. 802.11</p> <p>b. 802.11b/g</p> <p>c. 802.11n</p> <p>d. 802.11a</p>	C and D
<p>Which three of the following modulation techniques do WLANs today use? (Choose three.)</p> <p>a. OFDM</p> <p>b. AM</p> <p>c. FM</p>	A, D, and E

<p>d. DSSS e. MIMO</p>	
<p>DSSS uses a chipping code to encode redundant data into the modulated signal. Which two of the following are examples of chipping codes that DSSS uses? (Choose two.)</p> <p>a. Barker code b. Baker code c. Complementary code keying (CCK) d. Cypher block chaining (CBC)</p>	<p>A and C</p>
<p>DSSS binary phase-shift keying uses what method of encoding at the 1-Mbps data rate?</p> <p>a. 11-chip Barker code b. 8-chip CCK c. 11-chip CCK d. 8-chip Barker code</p>	<p>A</p>
<p>With DRS, when a laptop operating at 11 Mbps moves farther away from an access point, what happens?</p> <p>a. The laptop roams to another AP. b. The laptop loses its connection. c. The rate shifts dynamically to 5.5 Mbps. d. The rate increases, providing more throughput.</p>	<p>C</p>

Standards Bodies

<p>The FCC regulates wireless usage in which of the following countries?</p> <p>a. United States of America b. United Arab Emirates c. United Kingdom d. Europe, Asia, and Asia</p>	A
<p>True or false: The U.S. complies with ETSI standards of EIRP.</p> <p>a. True b. False</p>	B
<p>What is the maximum EIRP for point-to-multipoint in Europe? (Choose all that apply.)</p> <p>a. 20 dBm b. 17 dBi c. 17 dBm d. 36 dBm</p>	A and C
<p>The FCC regulates EIRP in the U.S. to a maximum of _____ for point-to-point and _____ for point-to-multipoint.</p> <p>a. 36 dBm, 36 dBm b. 30 dBm, 17 dBm c. 17 dBm, 36, dBm d. 36 dBm, 17 dBm</p>	A
<p>The IEEE committees work on which of the following wireless standards? (Choose all that apply.)</p> <p>a. 802.11a b. 802.11g c. 802.11x d. 802.1q e. 802.11b</p>	A, B, and E
<p>True or false: The IEEE is a regulatory body in the U.S. that controls the usage of wireless frequencies.</p> <p>a. True b. False</p>	B
<p>In Europe, can a professional installer increase the gain on wireless antennas?</p> <p>a. Yes, provided that he or she decreases the transmit power using a 1:1 ratio. b. No; this is illegal. c. Only with a wavier. d. Antennas don't have anything to do with gain.</p>	A
<p>The FCC regulates that professional installers maintain what ratio of gain to</p>	A

<p>transmit power when increasing the gain of an antenna?</p> <p>a. 3:1 b. 1:1 c. 6:1 d. 1:3</p>	
<p>Which organization certifies interoperability for wireless equipment?</p> <p>a. Wi-Max Alliance b. IEEE c. Wi-Fi Alliance d. FRF.12</p>	C
<p>Certification of wireless equipment includes which protocols and standards for interoperability? (Choose two.)</p> <p>a. 802.11a/b/g b. IPsec c. WPA/WPA2 d. Zigbee</p>	A and C

WLAN RF Principles

<p>Which of the following best describes a frequency that is seen 1 million times per second?</p> <p>a. 1 Hz b. 1000000 Mb c. 1 joule d. 1 MHz</p>	D
<p>What does amplitude measure?</p> <p>a. Distance from high crest to high crest horizontally in a waveform b. Distance between two access points c. Distance from low crest to midspan in a waveform d. Height of wave from lowest crest to highest crest</p>	D
<p>EIRP is calculated using which of the following formulas?</p> <p>a. EIRP = transmitter power – cable loss + antenna gain b. EIRP = interference – cable loss + antenna gain c. EIRP = cable gain – cable loss + antenna gain d. EIRP = transmitter loss + cable loss + antenna gain</p>	A
<p>Metal desks, glass, light fixtures, and computer screens can contribute to which influence on wireless transmissions?</p> <p>a. Scattering b. Refraction c. Reflection d. Absorption</p>	C
<p>Carpet, human bodies, and walls can contribute to which influence on wireless transmission?</p> <p>a. Scattering b. Refraction c. Reflection d. Absorption</p>	D
<p>In the Free Path Loss model, objects that are farther away from a transmitter receive the same amount of signal as those that are closer to the transmitter. True or False?</p> <p>a. True b. False</p>	B
<p>If a signal is being spread about by microparticles, it is experiencing which influence</p>	A

<p>on wireless transmissions?</p> <ul style="list-style-type: none"> a. Scattering b. Spreading c. Scarring d. Splitting e. Refracting 	
<p>Multipath causes which of the following issues? (Choose all that apply.)</p> <ul style="list-style-type: none"> a. Redundant connectivity b. The signal becoming out of phase, which can potentially cancel the signal c. The signal being received by multiple devices in the path, causing security concerns d. Portions of the signal being reflected and arriving out of order 	B and D
<p>Scattering is caused by humidity. True or False?</p> <ul style="list-style-type: none"> a. True b. False 	A
<p>For line of sight (LOS) transmissions, what can determine where signals can become out of phase?</p> <ul style="list-style-type: none"> a. Free Path Zone b. EIRP c. Fresnel Zone d. Phase Zone 	C
<p>Link budget is used to do which of the following? (Choose two.)</p> <ul style="list-style-type: none"> a. Account for all the receivers on a link b. Account for all the gains and losses c. Determine how much money you can spend on a wireless deployment d. Factor in EIRP and attenuation for a transmission 	B and D

WLAN Technologies and Topologies

Which of the following topologies can be used with clients closer than 20 feet (6 meters)? a. WLAN b. WWAN c. WPAN d. WMAN	C
True or false: A WLAN uses 802.16b. a. True b. False	B
What topology is most often seen in a LAN and is designed to connect multiple devices to the network? a. WMAN b. WPAN c. WLAN d. WWAN	C
In what frequency ranges does a wireless LAN operate? (Choose two.) a. 2.2 GHz b. 2.4 GHz c. 2.4 MHz d. 5 GHz e. 5 MHz	B and D
What type of speed can you expect from a WMAN? a. Broadband b. WAN c. Ethernet d. Dialup modem	A
What is the name of the common WMAN technology? a. WiMAN b. WiMAX c. Wi-Fi d. WiNET	B
True or false: Deploying a WWAN is relatively inexpensive, so it's common for enterprise customers to deploy their own. a. True b. False	B
Which of the following are 802.11 topologies for LANs? (Choose all that apply.)	B and

<ul style="list-style-type: none"> a. Adsense b. Ad hoc c. Infrastructure d. Internal 	C
<p>What does BSS stand for?</p> <ul style="list-style-type: none"> a. Basic Service Signal b. Basic Service Separation c. Basic Service Set d. Basic Signal Server 	D
<p>If an AP is not used in a wireless network, this is called which of the following?</p> <ul style="list-style-type: none"> a. Independent Basic Service Set b. Solitary Service Set c. Single-Mode Set (SMS) d. Basic Individual Service Set 	A
<p>For two devices to communicate without an access point, you must define which of the following?</p> <ul style="list-style-type: none"> a. A group name b. A password c. A network number d. A key 	A
<p>True or false: When operating in infrastructure mode, an AP is operating in full-duplex mode.</p> <ul style="list-style-type: none"> a. True b. False 	B
<p>What device does an access point act as to connect wireless clients to a wired network?</p> <ul style="list-style-type: none"> a. Hub b. Bridge c. Router d. Repeater 	B
<p>What is another name for wireless clients?</p> <ul style="list-style-type: none"> a. Stations b. End nodes c. Clients d. Mobile APs 	A
<p>An access point is what kind of device?</p> <ul style="list-style-type: none"> a. Support device b. Network device c. Perimeter device 	D

d. Infrastructure device	
What is the name for the area of coverage offered by a single access point? a. VSA b. MSA c. TSA d. BSA	D
When more than one AP connects to a common distribution, what is the network called? a. Extended Service Area b. Basic Service Area c. Local Service Area d. WMAN	A
Clients connect to which of the following to access the LAN via a wireless AP? a. SSID b. SCUD c. BSID d. BSA	A
When one area exists, what is the name of the service set advertised by an AP? a. BBSM b. BSUP c. BSSID d. SSIG	C
Using MBSSIDs indicates which of the following? a. More than one AP is advertising SSIDs. b. More than one SSID is being advertised by one AP. c. The AP sees more than one SSID. d. There are multiple MACs on one SSID.	B
What can you use to connect an isolated wired network to a LAN? a. WLAN b. WGB c. Repeater d. Hub	B
Cisco offers which types of wireless bridges? (Choose two.) a. aWGB b. bWGB c. uWGB d. cWGB	A and C
For topologies where cable lengths prohibit placing an AP in certain locations, what	C

<p>solution can be used?</p> <ul style="list-style-type: none"> a. Install a new switch that's closer. b. Install a hub instead. c. Install a repeater. d. Install a wireless client. 	
<p>How much overlap is needed with an AP when a wireless repeater is used?</p> <ul style="list-style-type: none"> a. 10 to 15 percent b. 100 percent c. 50 percent d. 40 to 80 percent 	C
<p>True or false: Outdoor mesh networks support only point-to-point topologies.</p> <ul style="list-style-type: none"> a. True b. False 	B
<p>Mesh deployments are appropriate when _____ is a major concern.</p> <ul style="list-style-type: none"> a. Connectivity b. Security c. Cost d. Speed 	A

Rules summery

Hint, 1st Fresnel zone radius (m) = $8.657 \times (D/f)^{0.5}$
D = total distance in kilometers
f = frequency transmitted in gigahertz.

FSP = $20 \log d(\text{meters}) + 20 \log f(\text{GHz}) + 32.45$

Power in dbm = $10 \log(\text{power in mw})$