Week 4 Amateur Radio General Questions

Effective July 1, 2015

General Chapter 7, Antennas
General Chapter 8, Propagation

G2D04 (B)
Which of the following describes an azimuthal projection map?
A. A map that shows accurate land masses
B. A map that shows true bearings and distances from a particular location
C. A map that shows the angle at which an amateur satellite crosses the equator
D. A map that shows the number of degrees longitude that an amateur satellite appears to move westward at the equator with each orbit
~~

G2D11 (C)
Which HF antenna would be the best to use for minimizing interference?
A. A quarter-wave vertical antenna
B. An isotropic antenna
C. A directional antenna
D. An omnidirectional antenna
~~

SUBELEMENT G3 - RADIO WAVE PROPAGATION [3 Exam Questions - 3 Groups]

G3A - Sunspots and solar radiation; ionospheric disturbances; propagation forecasting and indices

G3A01 (A)
What is the significance of the sunspot number with regard to HF propagation?
A. Higher sunspot numbers generally indicate a greater probability of good propagation at higher frequencies
B. Lower sunspot numbers generally indicate greater probability of sporadic E propagation
C. A zero sunspot number indicate radio propagation is not possible on any band
D. All of these choices are correct.
~~

G3A02 (B)
What effect does a Sudden Ionospheric Disturbance have on the daytime ionospheric propagation of HF radio waves?
A. It enhances propagation on all HF frequencies
B. It disrupts signals on lower frequencies more than those on higher frequencies
C. It disrupts communications via satellite more than direct communications
D. None, because only areas on the night side of the Earth are affected
~~

G3A03 (C)
Approximately how long does it take the increased ultraviolet and X-ray radiation from solar flares to affect radio propagation on the Earth?
A. 28 days
B. 1 to 2 hours
C. 8 minutes
D. 20 to 40 hours
~~

G3A04 (D)
Which of the following are least reliable for long distance communications during periods of low solar activity?
A. 80 meters and 160 meters
B. 60 meters and 40 meters
C. 30 meters and 20 meters
D. 15 meters, 12 meters and 10 meters
~~

G3A05 (D)
What is the solar flux index?
A. A measure of the highest frequency that is useful for ionospheric propagation between two points on the Earth
B. A count of sunspots which is adjusted for solar emissions
C. Another name for the American sunspot number
D. A measure of solar radiation at 10.7 centimeters wavelength
~~

G3A06 (D)
What is a geomagnetic storm?
A. A sudden drop in the solar flux index
B. A thunderstorm which affects radio propagation
C. Ripples in the ionosphere
D. A temporary disturbance in the Earth's magnetosphere
~~

G3A07 (D)
At what point in the solar cycle does the 20-meter band usually support worldwide propagation during daylight hours?
A. At the summer solstice
B. Only at the maximum point of the solar cycle
C. Only at the minimum point of the solar cycle
D. At any point in the solar cycle
~~

G3A08 (B)
Which of the following effects can a geomagnetic storm have on radio propagation?
A. Improved high-latitude HF propagation
B. Degraded high-latitude HF propagation
C. Improved ground-wave propagation
D. Improved chances of UHF ducting
~~

G3A09 (C)
What effect does a high sunspot number have on radio communications?
A. High-frequency radio signals become weak and distorted
B. Frequencies above 300 MHz become usable for long-distance communication
C. Long-distance communication in the upper HF and lower VHF range is enhanced
D. Microwave communications become unstable
~~

G3A10 (C)
What causes HF propagation conditions to vary periodically in a 28 day cycle?
A. Long term oscillations in the upper atmosphere
B. Cyclic variation in the Earth’s radiation belts
C. The Sun’s rotation on its axis
D. The position of the Moon in its orbit
~~

G3A11 (D)
Approximately how long is the typical sunspot cycle?
A. 8 minutes
B. 40 hours
C. 28 days
D. 11 years
~~

G3A12 (B)
What does the K-index indicate?
A. The relative position of sunspots on the surface of the Sun
B. The short term stability of the Earth’s magnetic field
C. The stability of the Sun's magnetic field
D. The solar radio flux at Boulder, Colorado
~~

G3A13 (C)
What does the A-index indicate?
A. The relative position of sunspots on the surface of the Sun
B. The amount of polarization of the Sun's electric field
C. The long term stability of the Earth’s geomagnetic field
D. The solar radio flux at Boulder, Colorado
~~

G3A14 (B)
How are radio communications usually affected by the charged particles that reach the Earth from solar coronal holes?
A. HF communications are improved
B. HF communications are disturbed
C. VHF/UHF ducting is improved
D. VHF/UHF ducting is disturbed
~~

G3A15 (D)
How long does it take charged particles from coronal mass ejections to affect radio propagation on the Earth?
A. 28 days
B. 14 days
C. 4 to 8 minutes
D. 20 to 40 hours
~~

G3A16 (A)
What is a possible benefit to radio communications resulting from periods of high geomagnetic activity?
A. Auroras that can reflect VHF signals
B. Higher signal strength for HF signals passing through the polar regions
C. Improved HF long path propagation
D. Reduced long delayed echoes
~~

G3B - Maximum Usable Frequency; Lowest Usable Frequency; propagation

G3B01 (D)
How might a sky-wave signal sound if it arrives at your receiver by both short path and long path propagation?
A. Periodic fading approximately every 10 seconds
B. Signal strength increased by 3 dB
C. The signal might be cancelled causing severe attenuation
D. A well-defined echo might be heard
~~

G3B02 (A)
Which of the following is a good indicator of the possibility of sky-wave propagation on the 6-meter band?
A. Short skip sky-wave propagation on the 10-meter band
B. Long skip sky-wave propagation on the 10-meter band
C. Severe attenuation of signals on the 10-meter band
D. Long delayed echoes on the 10-meter band
~~

G3B03 (A)
Which of the following applies when selecting a frequency for lowest attenuation when transmitting on HF?
A. Select a frequency just below the MUF
B. Select a frequency just above the LUF
C. Select a frequency just below the critical frequency
D. Select a frequency just above the critical frequency
~~

G3B04 (A)
What is a reliable way to determine if the MUF is high enough to support skip propagation between your station and a distant location on frequencies between 14 and 30 MHz?
A. Listen for signals from an international beacon in the frequency range you plan to use
B. Send a series of dots on the band and listen for echoes from your signal
C. Check the strength of TV signals from Western Europe
D. Check the strength of signals in the MF AM broadcast band
~~

G3B05 (A)
What usually happens to radio waves with frequencies below the MUF and above the LUF when they are sent into the ionosphere?
A. They are bent back to the Earth
B. They pass through the ionosphere
C. They are amplified by interaction with the ionosphere
D. They are bent and trapped in the ionosphere to circle the Earth
~~

G3B06 (C)
What usually happens to radio waves with frequencies below the LUF?
A. They are bent back to the Earth
B. They pass through the ionosphere
C. They are completely absorbed by the ionosphere
D. They are bent and trapped in the ionosphere to circle the Earth
~~

G3B07 (A)
What does LUF stand for?
A. The Lowest Usable Frequency for communications between two points
B. The Longest Universal Function for communications between two points
C. The Lowest Usable Frequency during a 24 hour period
D. The Longest Universal Function during a 24 hour period
~~

G3B08 (B)
What does MUF stand for?
A. The Minimum Usable Frequency for communications between two points
B. The Maximum Usable Frequency for communications between two points
C. The Minimum Usable Frequency during a 24 hour period
D. The Maximum Usable Frequency during a 24 hour period
~~

G3B09 (C)
What is the approximate maximum distance along the Earth's surface that is normally covered in one hop using the F2 region?
A. 180 miles
B. 1,200 miles
C. 2,500 miles
D. 12,000 miles
~~

G3B10 (B)
What is the approximate maximum distance along the Earth's surface that is normally covered in one hop using the E region?
A. 180 miles
B. 1,200 miles
C. 2,500 miles
D. 12,000 miles
~~

G3B11 (A)
What happens to HF propagation when the LUF exceeds the MUF?
A. No HF radio frequency will support ordinary sky-wave communications over the path
B. HF communications over the path are enhanced
C. Double hop propagation along the path is more common
D. Propagation over the path on all HF frequencies is enhanced
~~

G3B12 (D)
What factor or factors affect the MUF?
A. Path distance and location
B. Time of day and season
C. Solar radiation and ionospheric disturbances
D. All of these choices are correct
~~

G3C - Ionospheric layers; critical angle and frequency; HF scatter; Near Vertical Incidence Sky-wave

G3C01 (A)
Which ionospheric layer is closest to the surface of the Earth?
A. The D layer
B. The E layer
C. The F1 layer
D. The F2 layer
~~

G3C02 (A)
Where on the Earth do ionospheric layers reach their maximum height?
A. Where the Sun is overhead
B. Where the Sun is on the opposite side of the Earth
C. Where the Sun is rising
D. Where the Sun has just set
~~

G3C03 (C)
Why is the F2 region mainly responsible for the longest distance radio wave propagation?
A. Because it is the densest ionospheric layer
B. Because it does not absorb radio waves as much as other ionospheric regions
C. Because it is the highest ionospheric region
D. All of these choices are correct
~~

G3C04 (D)
What does the term "critical angle" mean as used in radio wave propagation?
A. The long path azimuth of a distant station
B. The short path azimuth of a distant station
C. The lowest takeoff angle that will return a radio wave to the Earth under specific ionospheric conditions
D. The highest takeoff angle that will return a radio wave to the Earth under specific ionospheric conditions
~~

G3C05 (C)
Why is long distance communication on the 40-meter, 60-meter, 80-meter and 160-meter bands more difficult during the day?
A. The F layer absorbs signals at these frequencies during daylight hours
B. The F layer is unstable during daylight hours
C. The D layer absorbs signals at these frequencies during daylight hours
D. The E layer is unstable during daylight hours
~~

G3C06 (B)
What is a characteristic of HF scatter signals?
A. They have high intelligibility
B. They have a wavering sound
C. They have very large swings in signal strength
D. All of these choices are correct
~~

G3C07 (D)
What makes HF scatter signals often sound distorted?
A. The ionospheric layer involved is unstable
B. Ground waves are absorbing much of the signal
C. The E-region is not present
D. Energy is scattered into the skip zone through several different radio wave paths
~~

G3C08 (A)
Why are HF scatter signals in the skip zone usually weak?
A. Only a small part of the signal energy is scattered into the skip zone
B. Signals are scattered from the magnetosphere which is not a good reflector
C. Propagation is through ground waves which absorb most of the signal energy
D. Propagations is through ducts in F region which absorb most of the energy
~~

G3C09 (B)
What type of radio wave propagation allows a signal to be detected at a distance too far for ground wave propagation but too near for normal sky-wave propagation?
A. Faraday rotation
B. Scatter
C. Sporadic-E skip
D. Short-path skip
~~

G3C10 (D)
Which of the following might be an indication that signals heard on the HF bands are being received via scatter propagation?
A. The communication is during a sunspot maximum
B. The communication is during a sudden ionospheric disturbance
C. The signal is heard on a frequency below the Maximum Usable Frequency
D. The signal is heard on a frequency above the Maximum Usable Frequency
~~

G3C11 (B)
Which of the following antenna types will be most effective for skip communications on 40-meters during the day?
A. A vertical antenna
B. A horizontal dipole placed between 1/8 and 1/4 wavelength above the ground
C. A left-hand circularly polarized antenna
D. A right-hand circularly polarized antenna
~~

G3C12 (D)
Which ionospheric layer is the most absorbent of long skip signals during daylight hours on frequencies below 10 MHz?
A. The F2 layer
B. The F1 layer
C. The E layer
D. The D layer
~~

G3C13 (B)
What is Near Vertical Incidence Sky-wave (NVIS) propagation?
A. Propagation near the MUF
B. Short distance MF or HF propagation using high elevation angles
C. Long path HF propagation at sunrise and sunset
D. Double hop propagation near the LUF
~~

G4A06 (C)
What type of device is often used to match transmitter output impedance to an impedance not equal to 50 ohms?
A. Balanced modulator
B. SWR Bridge
C. Antenna coupler or antenna tuner
D. Q Multiplier
~~

G4E - HF mobile radio installations; emergency and battery powered operation

G4E01 (C)
What is the purpose of a capacitance hat on a mobile antenna?
A. To increase the power handling capacity of a whip antenna
B. To allow automatic band changing
C. To electrically lengthen a physically short antenna
D. To allow remote tuning
~~

G4E02 (D)
What is the purpose of a corona ball on a HF mobile antenna?
A. To narrow the operating bandwidth of the antenna
B. To increase the "Q" of the antenna
C. To reduce the chance of damage if the antenna should strike an object
D. To reduce high voltage discharge from the tip of the antenna
~~

G4E06 (C)
What is one disadvantage of using a shortened mobile antenna as opposed to a full size antenna?
A. Short antennas are more likely to cause distortion of transmitted signals
B. Short antennas can only receive circularly polarized signals
C. Operating bandwidth may be very limited
D. Harmonic radiation may increase
~~

SUBELEMENT G9 – ANTENNAS AND FEED LINES [4 Exam Questions – 4 Groups]

G9A - Antenna feed lines: characteristic impedance, and attenuation; SWR calculation, measurement and effects; matching networks

G9A01 (A)
Which of the following factors determine the characteristic impedance of a parallel conductor antenna feed line?
A. The distance between the centers of the conductors and the radius of the conductors
B. The distance between the centers of the conductors and the length of the line
C. The radius of the conductors and the frequency of the signal
D. The frequency of the signal and the length of the line
~~

G9A02 (B)
What are the typical characteristic impedances of coaxial cables used for antenna feed lines at amateur stations?
A. 25 and 30 ohms
B. 50 and 75 ohms
C. 80 and 100 ohms
D. 500 and 750 ohms
~~

G9A03 (D)
What is the characteristic impedance of flat ribbon TV type twinlead?
A. 50 ohms
B. 75 ohms
C. 100 ohms
D. 300 ohms
~~

G9A04 (C)
What might cause reflected power at the point where a feed line connects to an antenna?
A. Operating an antenna at its resonant frequency
B. Using more transmitter power than the antenna can handle
C. A difference between feed line impedance and antenna feed point impedance
D. Feeding the antenna with unbalanced feed line
~~

G9A05 (B)
How does the attenuation of coaxial cable change as the frequency of the signal it is carrying increases?
A. Attenuation is independent of frequency
B. Attenuation increases
C. Attenuation decreases
D. Attenuation reaches a maximum at approximately 18 MHz
~~

G9A06 (D)
In what units is RF feed line loss usually expressed?
A. Ohms per 1000 feet
B. Decibels per 1000 feet
C. Ohms per 100 feet
D. Decibels per 100 feet
~~

G9A07 (D)
What must be done to prevent standing waves on an antenna feed line?
A. The antenna feed point must be at DC ground potential
B. The feed line must be cut to a length equal to an odd number of electrical quarter wavelengths
C. The feed line must be cut to a length equal to an even number of physical half wavelengths
D. The antenna feed point impedance must be matched to the characteristic impedance of the feed line
~~

G9A08 (B)
If the SWR on an antenna feed line is 5 to 1, and a matching network at the transmitter end of the feed line is adjusted to 1 to 1 SWR, what is the resulting SWR on the feed line?
A. 1 to 1
B. 5 to 1
C. Between 1 to 1 and 5 to 1 depending on the characteristic impedance of the line
D. Between 1 to 1 and 5 to 1 depending on the reflected power at the transmitter
~~

G9A09 (A)
What standing wave ratio will result when connecting a 50 ohm feed line to a non-reactive load having 200 ohm impedance?
A. 4:1
B. 1:4
C. 2:1
D. 1:2
~~

G9A10 (D)
What standing wave ratio will result when connecting a 50 ohm feed line to a non-reactive load having 10 ohm impedance?
A. 2:1
B. 50:1
C. 1:5
D. 5:1
~~

G9A11 (B)
What standing wave ratio will result when connecting a 50 ohm feed line to a non-reactive load having 50 ohm impedance?
A. 2:1
B. 1:1
C. 50:50
D. 0:0
~~

G9A12 (A)
What standing wave ratio will result when connecting a 50 ohm feed line to a non-reactive load having 25 ohm impedance?
A. 2:1
B. 2.5:1
C. 1.25:1
D. You cannot determine SWR from impedance values
~~

G9A13 (C)
What standing wave ratio will result when connecting a 50 ohm feed line to an antenna that has a purely resistive 300 ohm feed point impedance?
A. 1.5:1
B. 3:1
C. 6:1
D. You cannot determine SWR from impedance values
~~

G9A14 (B)
What is the interaction between high standing wave ratio (SWR) and transmission line loss?
A. There is no interaction between transmission line loss and SWR
B. If a transmission line is lossy, high SWR will increase the loss
C. High SWR makes it difficult to measure transmission line loss
D. High SWR reduces the relative effect of transmission line loss
~~

G9A15 (A)
What is the effect of transmission line loss on SWR measured at the input to the line?
A. The higher the transmission line loss, the more the SWR will read artificially low
B. The higher the transmission line loss, the more the SWR will read artificially high
C. The higher the transmission line loss, the more accurate the SWR measurement will be
D. Transmission line loss does not affect the SWR measurement
~~

G9B - Basic antennas

G9B01 (B)
What is one disadvantage of a directly fed random-wire HF antenna?
A. It must be longer than 1 wavelength
B. You may experience RF burns when touching metal objects in your station
C. It produces only vertically polarized radiation
D. It is more effective on the lower HF bands than on the higher bands
~~

G9B02 (B)
Which of the following is a common way to adjust the feed point impedance of a quarter wave ground plane vertical antenna to be approximately 50 ohms?
A. Slope the radials upward
B. Slope the radials downward
C. Lengthen the radials
D. Shorten the radials
~~

G9B03 (B)
What happens to the feed point impedance of a ground plane antenna when its radials are changed from horizontal to sloping downward?
A. It decreases
B. It increases
C. It stays the same
D. It reaches a maximum at an angle of 45 degrees
~~

G9B04 (A)
What is the radiation pattern of a dipole antenna in free space in the plane of the conductor?
A. It is a figure-eight at right angles to the antenna
B. It is a figure-eight off both ends of the antenna
C. It is a circle (equal radiation in all directions)
D. It has a pair of lobes on one side of the antenna and a single lobe on the other side
~~

G9B05 (C)
How does antenna height affect the horizontal (azimuthal) radiation pattern of a horizontal dipole HF antenna?
A. If the antenna is too high, the pattern becomes unpredictable
B. Antenna height has no effect on the pattern
C. If the antenna is less than 1/2 wavelength high, the azimuthal pattern is almost omnidirectional
D. If the antenna is less than 1/2 wavelength high, radiation off the ends of the wire is eliminated
~~

G9B06 (C)
Where should the radial wires of a ground-mounted vertical antenna system be placed?
A. As high as possible above the ground
B. Parallel to the antenna element
C. On the surface of the Earth or buried a few inches below the ground
D. At the center of the antenna
~~

G9B07 (B)
How does the feed point impedance of a 1/2 wave dipole antenna change as the antenna is lowered below 1/4 wave above ground?
A. It steadily increases
B. It steadily decreases
C. It peaks at about 1/8 wavelength above ground
D. It is unaffected by the height above ground
~~

G9B08 (A)
How does the feed point impedance of a 1/2 wave dipole change as the feed point is moved from the center toward the ends?
A. It steadily increases
B. It steadily decreases
C. It peaks at about 1/8 wavelength from the end
D. It is unaffected by the location of the feed point
~~

G9B09 (A)
Which of the following is an advantage of a horizontally polarized as compared to a vertically polarized HF antenna?
A. Lower ground reflection losses
B. Lower feed point impedance
C. Shorter Radials
D. Lower radiation resistance
~~

G9B10 (D)
What is the approximate length for a 1/2 wave dipole antenna cut for 14.250 MHz?
A. 8 feet
B. 16 feet
C. 24 feet
D. 32 feet
~~

G9B11 (C)
What is the approximate length for a 1/2 wave dipole antenna cut for 3.550 MHz?
A. 42 feet
B. 84 feet
C. 131 feet
D. 263 feet
~~

G9B12 (A)
What is the approximate length for a 1/4 wave vertical antenna cut for 28.5 MHz?
A. 8 feet
B. 11 feet
C. 16 feet
D. 21 feet
~~

G9C - Directional antennas

G9C01 (A)
Which of the following would increase the bandwidth of a Yagi antenna?
A. Larger diameter elements
B. Closer element spacing
C. Loading coils in series with the element
D. Tapered-diameter elements
~~

G9C02 (B)
What is the approximate length of the driven element of a Yagi antenna?
A. 1/4 wavelength
B. 1/2 wavelength
C. 3/4 wavelength
D. 1 wavelength
~~

G9C03 (B)
Which statement about a three-element, single-band Yagi antenna is true?
A. The reflector is normally the shortest element
B. The director is normally the shortest element
C. The driven element is the longest element
D. Low feed point impedance increases bandwidth
~~

G9C04 (A)
Which statement about a three-element, single-band Yagi antenna is true?
A. The reflector is normally the longest element
B. The director is normally the longest element
C. The reflector is normally the shortest element
D. All of the elements must be the same length
~~

G9C05 (A)
How does increasing boom length and adding directors affect a Yagi antenna?
A. Gain increases
B. Beamwidth increases
C. Front to back ratio decreases
D. Front to side ratio decreases
~~

G9C06 (D)
What configuration of the loops of a two-element quad antenna must be used for the antenna to operate as a beam antenna, assuming one of the elements is used as a reflector?
A. The driven element must be fed with a balun transformer
B. There must be an open circuit in the driven element at the point opposite the feed point
C. The reflector element must be approximately 5 percent shorter than the driven element
D. The reflector element must be approximately 5 percent longer than the driven element
~~

G9C07 (C)
What does "front-to-back ratio" mean in reference to a Yagi antenna?
A. The number of directors versus the number of reflectors
B. The relative position of the driven element with respect to the reflectors and directors
C. The power radiated in the major radiation lobe compared to the power radiated in exactly the opposite direction
D. The ratio of forward gain to dipole gain
~~

G9C08 (D)
What is meant by the "main lobe" of a directive antenna?
A. The magnitude of the maximum vertical angle of radiation
B. The point of maximum current in a radiating antenna element
C. The maximum voltage standing wave point on a radiating element
D. The direction of maximum radiated field strength from the antenna
~~

G9C09 (B)
How does the gain of two 3-element horizontally polarized Yagi antennas spaced vertically 1/2 wavelength apart typically compare to the gain of a single 3-element Yagi?
A. Approximately 1.5 dB higher
B. Approximately 3 dB higher
C. Approximately 6 dB higher
D. Approximately 9 dB higher
~~

G9C10 (D)
Which of the following is a Yagi antenna design variable that could be adjusted to optimize forward gain, front-to-back ratio, or SWR bandwidth?
A. The physical length of the boom
B. The number of elements on the boom
C. The spacing of each element along the boom
D. All of these choices are correct
~~

G9C11 (A)
What is the purpose of a gamma match used with Yagi antennas?
A. To match the relatively low feed point impedance to 50 ohms
B. To match the relatively high feed point impedance to 50 ohms
C. To increase the front-to-back ratio
D. To increase the main lobe gain
~~

G9C12 (A)
Which of the following is an advantage of using a gamma match for impedance matching of a Yagi antenna to 50 ohm coax feed line?
A. It does not require that the elements be insulated from the boom
B. It does not require any inductors or capacitors
C. It is useful for matching multiband antennas
D. All of these choices are correct
~~

G9C13 (A)
Approximately how long is each side of the driven element of a quad antenna?
A. 1/4 wavelength
B. 1/2 wavelength
C. 3/4 wavelength
D. 1 wavelength
~~

G9C14 (B)
How does the forward gain of a two-element quad antenna compare to the forward gain of a three-element Yagi antenna?
A. About 2/3 as much
B. About the same
C. About 1.5 times as much
D. About twice as much
~~

G9C15 (B)
Approximately how long is each side of the reflector element of a quad antenna?
A. Slightly less than 1/4 wavelength
B. Slightly more than 1/4 wavelength
C. Slightly less than 1/2 wavelength
D. Slightly more than 1/2 wavelength
~~

G9C16 (D)
How does the gain of a two-element delta-loop beam compare to the gain of a two-element quad antenna?
A. 3 dB higher
B. 3 dB lower
C. 2.54 dB higher
D. About the same
~~

G9C17 (B)
Approximately how long is each leg of a symmetrical delta-loop antenna?
A. 1/4 wavelength
B. 1/3 wavelength
C. 1/2 wavelength
D. 2/3 wavelength
~~

G9C18 (A)
What happens when the feed point of a quad antenna of any shape is moved from the midpoint of the top or bottom to the midpoint of either side?
A. The polarization of the radiated signal changes from horizontal to vertical
B. The polarization of the radiated signal changes from vertical to horizontal
C. There is no change in polarization
D. The radiated signal becomes circularly polarized
~~

G9C19 (B)
How does antenna gain stated in dBi compare to gain stated in dBd for the same antenna?
A. dBi gain figures are 2.15 dB lower then dBd gain figures
B. dBi gain figures are 2.15 dB higher than dBd gain figures
C. dBi gain figures are the same as the square root of dBd gain figures multiplied by 2.15
D. dBi gain figures are the reciprocal of dBd gain figures + 2.15 dB
~~

G9C20 (A)
What is meant by the terms dBi and dBd when referring to antenna gain?
A. dBi refers to an isotropic antenna, dBd refers to a dipole antenna
B. dBi refers to an ionospheric reflecting antenna, dBd refers to a dissipative antenna
C. dBi refers to an inverted-vee antenna, dBd refers to a downward reflecting antenna
D. dBi refers to an isometric antenna, dBd refers to a discone antenna
~~

G9D - Specialized antennas

G9D01 (D)
What does the term NVIS mean as related to antennas?
A. Nearly Vertical Inductance System
B. Non-Varying Indicated SWR
C. Non-Varying Impedance Smoothing
D. Near Vertical Incidence sky-wave
~~

G9D02 (B)
Which of the following is an advantage of an NVIS antenna?
A. Low vertical angle radiation for working stations out to ranges of several thousand kilometers
B. High vertical angle radiation for working stations within a radius of a few hundred kilometers
C. High forward gain
D. All of these choices are correct
~~

G9D03 (D)
At what height above ground is an NVIS antenna typically installed?
A. As close to 1/2 wavelength as possible
B. As close to one wavelength as possible
C. Height is not critical as long as it is significantly more than 1/2 wavelength
D. Between 1/10 and 1/4 wavelength
~~

G9D04 (A)
What is the primary purpose of antenna traps?
A. To permit multiband operation
B. To notch spurious frequencies
C. To provide balanced feed point impedance
D. To prevent out of band operation
~~

G9D05 (D)
What is an advantage of vertical stacking of horizontally polarized Yagi antennas?
A. It allows quick selection of vertical or horizontal polarization
B. It allows simultaneous vertical and horizontal polarization
C. It narrows the main lobe in azimuth
D. It narrows the main lobe in elevation
~~

G9D06 (A)
Which of the following is an advantage of a log periodic antenna?
A. Wide bandwidth
B. Higher gain per element than a Yagi antenna
C. Harmonic suppression
D. Polarization diversity
~~

G9D07 (A)
Which of the following describes a log periodic antenna?
A. Length and spacing of the elements increase logarithmically from one end of the boom to the other
B. Impedance varies periodically as a function of frequency
C. Gain varies logarithmically as a function of frequency
D. SWR varies periodically as a function of boom length
~~

G9D08 (B)
Why is a Beverage antenna not used for transmitting?
A. Its impedance is too low for effective matching
B. It has high losses compared to other types of antennas
C. It has poor directivity
D. All of these choices are correct
~~

G9D09 (B)
Which of the following is an application for a Beverage antenna?
A. Directional transmitting for low HF bands
B. Directional receiving for low HF bands
C. Portable direction finding at higher HF frequencies
D. Portable direction finding at lower HF frequencies
~~

G9D10 (D)
Which of the following describes a Beverage antenna?
A. A vertical antenna
B. A broad-band mobile antenna
C. A helical antenna for space reception
D. A very long and low directional receiving antenna
~~

G9D11 (D)
Which of the following is a disadvantage of multiband antennas?
A. They present low impedance on all design frequencies
B. They must be used with an antenna tuner
C. They must be fed with open wire line
D. They have poor harmonic rejection
~~