

## Section 4.1

G2A06 (D)

Which of the following is an advantage when using single sideband, as compared to other analog voice modes on the HF amateur bands?

- A. Very high fidelity voice modulation
- B. Less subject to interference from atmospheric static crashes
- C. Ease of tuning on receive and immunity to impulse noise
- D. Less bandwidth used and greater power efficiency

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G2A07 (B)

Which of the following statements is true of the single sideband voice mode?

- A. Only one sideband and the carrier are transmitted; the other sideband is suppressed
- B. Only one sideband is transmitted; the other sideband and carrier are suppressed
- C. SSB is the only voice mode that is authorized on the 20-meter, 15-meter, and 10-meter amateur bands
- D. SSB is the only voice mode that is authorized on the 160-meter, 75-meter, and 40-meter amateur bands

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G2A12 (B)

What control is typically adjusted for proper ALC setting on an amateur single sideband transceiver?

- A. The RF clipping level
- B. Transmit audio or microphone gain
- C. Antenna inductance or capacitance
- D. Attenuator level

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G4A11 (A)

Which of the following is a use for the IF shift control on a receiver?

- A. To avoid interference from stations very close to the receive frequency
- B. To change frequency rapidly
- C. To permit listening on a different frequency from that on which you are transmitting
- D. To tune in stations that are slightly off frequency without changing your transmit frequency

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G4A14 (B)

What is likely to happen if a transceiver's ALC system is not set properly when transmitting AFSK signals with the radio using single sideband mode?

- A. ALC will invert the modulation of the AFSK mode
- B. Improper action of ALC distorts the signal and can cause spurious emissions
- C. When using digital modes, too much ALC activity can cause the transmitter to overheat
- D. All these choices are correct

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G4D08 (C)

What frequency range is occupied by a 3 kHz LSB signal when the displayed carrier frequency is set to 7.178 MHz?

- A. 7.178 to 7.181 MHz
- B. 7.178 to 7.184 MHz
- C. 7.175 to 7.178 MHz
- D. 7.1765 to 7.1795 MHz

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G4D09 (B)

What frequency range is occupied by a 3 kHz USB signal with the displayed carrier frequency set to 14.347 MHz?

- A. 14.347 to 14.647 MHz
- B. 14.347 to 14.350 MHz
- C. 14.344 to 14.347 MHz
- D. 14.3455 to 14.3485 MHz

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G4D10 (A)

How close to the lower edge of the phone segment should your displayed carrier frequency be when using 3 kHz wide LSB?

- A. At least 3 kHz above the edge of the segment
- B. At least 3 kHz below the edge of the segment
- C. At least 1 kHz below the edge of the segment
- D. At least 1 kHz above the edge of the segment

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G4D11 (B)

How close to the upper edge of the phone segment should your displayed carrier frequency be when using 3 kHz wide USB?

- A. At least 3 kHz above the edge of the band
- B. At least 3 kHz below the edge of the band
- C. At least 1 kHz above the edge of the segment
- D. At least 1 kHz below the edge of the segment

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G7C01 (B)

Which of the following is used to process signals from the balanced modulator then send them to the mixer in some single sideband phone transmitters?

- A. Carrier oscillator
- B. Filter
- C. IF amplifier
- D. RF amplifier

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G7C02 (D)

Which circuit is used to combine signals from the carrier oscillator and speech amplifier then send the result to the filter in some single sideband phone transmitters?

- A. Discriminator
- B. Detector
- C. IF amplifier
- D. Balanced modulator

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G7C03 (C)

What circuit is used to process signals from the RF amplifier and local oscillator then send the result to the IF filter in a superheterodyne receiver?

- A. Balanced modulator
- B. IF amplifier
- C. Mixer
- D. Detector

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G7C04 (D)

What circuit is used to combine signals from the IF amplifier and BFO and send the result to the AF amplifier in some single sideband receivers?

- A. RF oscillator

- B. IF filter
- C. Balanced modulator
- D. Product detector

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G7C07 (C)

What is the simplest combination of stages that implement a superheterodyne receiver?

- A. RF amplifier, detector, audio amplifier
- B. RF amplifier, mixer, IF discriminator
- C. HF oscillator, mixer, detector
- D. HF oscillator, prescaler, audio amplifier

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G8A05 (D)

What type of modulation varies the instantaneous power level of the RF signal?

- A. Frequency shift keying
- B. Phase modulation
- C. Frequency modulation
- D. Amplitude modulation

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G8A07 (A)

Which of the following phone emissions uses the narrowest bandwidth?

- A. Single sideband
- B. Double sideband
- C. Phase modulation
- D. Frequency modulation

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G8A10 (C)

What is meant by the term “flat-topping,” when referring to a single sideband phone transmission?

- A. Signal distortion caused by insufficient collector current
- B. The transmitter’s automatic level control (ALC) is properly adjusted
- C. Signal distortion caused by excessive drive
- D. The transmitter’s carrier is properly suppressed

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G8A11 (A)

What is the modulation envelope of an AM signal?

- A. The waveform created by connecting the peak values of the modulated signal
- B. The carrier frequency that contains the signal
- C. Spurious signals that envelop nearby frequencies
- D. The bandwidth of the modulated signal

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G8B01 (B)

Which mixer input is varied or tuned to convert signals of different frequencies to an intermediate frequency (IF)?

- A. Image frequency
- B. Local oscillator
- C. RF input
- D. Beat frequency oscillator

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G8B02 (B)

If a receiver mixes a 13.800 MHz VFO with a 14.255 MHz received signal to produce a 455 kHz intermediate frequency (IF) signal, what type of interference will a 13.345 MHz signal produce in the receiver?

- A. Quadrature noise
- B. Image response
- C. Mixer interference
- D. Intermediate interference

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G8B03 (A)

What is another term for the mixing of two RF signals?

- A. Heterodyning
- B. Synthesizing
- C. Cancellation
- D. Phase inverting

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G8B11 (C)

What combination of a mixer's Local Oscillator (LO) and RF input frequencies is found in the output?

- A. The ratio
- B. The average
- C. The sum and difference
- D. The arithmetic product

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