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The ARRL Extra Class License Course

All You Need to Pass Your Extra Class Exam

LEVEL 3: Extra

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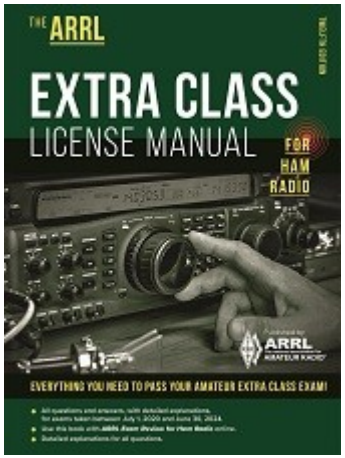

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Which of the following digital modes is designed for meteor scatter communications?

A. WSPR

B. MSK144

C. Hellschreiber

D. APRS

E2D01 ECLM Page (10 - 16)

Which of the following digital modes is designed for meteor scatter communications?

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(B) E2D01 ECLM Page (10 - 16)

Which of the following is a good technique for making meteor scatter contacts?

A. 15-second timed transmission sequences with stations alternating based on location

B. Use of special digital modes

C. Short transmissions with rapidly repeated call signs and signal reports

D. All these choices are correct

E2D02 ECLM Page (10 - 16)

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(D) E2D02 ECLM Page (10 - 16)

Which of the following digital modes is especially useful for EME communications?

A. MSK144

B. PACTOR III

C. Olivia

D. JT65

E2D03 ECLM Page (10 - 17)

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B. PACTOR III

C. Olivia

D. JT65

(D) E2D03 ECLM Page (10 - 17)

What technology is used to track, in real time, balloons carrying amateur radio transmitters?

A. Ultrasonics

B. Bandwidth compressed LORAN

C. APRS

D. Doppler shift of beacon signals

E2D04 ECLM Page (8 - 12)

What technology is used to track, in real time, balloons carrying amateur radio transmitters?

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B. Bandwidth compressed LORAN

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(C) E2D04 ECLM Page (8 - 12)

What is one advantage of the JT65 mode?

A. Uses only a 65 Hz bandwidth

B. The ability to decode signals which have a very low signal to noise ratio

C. Easily copied by ear if necessary

D. Permits fast-scan TV transmissions over narrow bandwidth

E2D05 ECLM Page (10 - 17)

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(B) E2D05 ECLM Page (10 - 17)

Which of the following describes a method of establishing EME contacts?

A. Time synchronous transmissions alternately from each station

B. Storing and forwarding digital messages

C. Judging optimum transmission times by monitoring beacons reflected from the moon

D. High speed CW identification to avoid fading

E2D06 ECLM Page (10 - 17)

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(A) E2D06 ECLM Page (10 - 17)

What digital protocol is used by APRS?

A. PACTOR

B. 802.11

C. AX.25

D. AMTOR

E2D07 ECLM Page (8 - 11)

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B. 802.11

C. AX.25

D. AMTOR

(C) E2D07 ECLM Page (8 - 11)

What type of packet frame is used to transmit APRS beacon data?

A. Unnumbered Information

B. Disconnect

C. Acknowledgement

D. Connect

E2D08 ECLM Page (8 - 12)

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(A) E2D08 ECLM Page (8 - 12)

What type of modulation is used for JT65 contacts?

A. Multi-tone AFSK

B. PSK

C. RTTY

D. IEEE 802.11

E2D09 ECLM Page (8 - 13)

What type of modulation is used for JT65 contacts?

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(A) E2D09 ECLM Page (8 - 13)

How can an APRS station be used to help support a public service communications activity?

A. An APRS station with an emergency medical technician can automatically transmit medical data to the nearest hospital

B. APRS stations with General Personnel Scanners can automatically relay the participant numbers and time as they pass the check points

C. An APRS station with a Global Positioning System unit can automatically transmit information to show a mobile station's position during the event

D. All these choices are correct

E2D10 ECLM Page (8 - 12)

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(C) E2D10 ECLM Page (8 - 12)

Which of the following data are used by the APRS network to communicate station location?

A. Polar coordinates

B. Time and frequency

C. Radio direction finding spectrum analysis

D. Latitude and longitude

E2D11 ECLM Page (8 - 12)

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A. Polar coordinates

B. Time and frequency

C. Radio direction finding spectrum analysis

D. Latitude and longitude

(D) E2D11 ECLM Page (8 - 12)

Which of the following types of modulation is common for data emissions below 30 MHz?

A. DTMF tones modulating an FM signal

B. FSK

C. Pulse modulation

D. Spread spectrum

E2E01 ECLM Page (8 - 10)

Which of the following types of modulation is common for data emissions below 30 MHz?

A. DTMF tones modulating an FM signal

B. FSK

C. Pulse modulation

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(B) E2E01 ECLM Page (8 - 10)

What do the letters FEC mean as they relate to digital operation?

A. Forward Error Correction

B. First Error Correction

C. Fatal Error Correction

D. Final Error Correction

E2E02 ECLM Page (8 - 17)

What do the letters FEC mean as they relate to digital operation?

A. Forward Error Correction

B. First Error Correction

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(A) E2E02 ECLM Page (8 - 17)

How is the timing of FT4 contacts organized?

A. By exchanging ACK/NAK packets

B. Stations take turns on alternate days

C. Alternating transmissions at 7.5 second intervals

D. It depends on the lunar phase

E2E03 ECLM Page (8 - 13)

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(C) E2E03 ECLM Page (8 - 13)

What is indicated when one of the ellipses in an FSK crossed-ellipse display suddenly disappears?

A. Selective fading has occurred

B. One of the signal filters is saturated

C. The receiver has drifted 5 kHz from the desired receive frequency

D. The mark and space signal have been inverted

E2E04 ECLM Page (8 - 10)

What is indicated when one of the ellipses in an FSK crossed-ellipse display suddenly disappears?

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(A) E2E04 ECLM Page (8 - 10)

Which of these digital modes does not support keyboard-to-keyboard operation?

A. PACTOR

B. RTTY

C. PSK31

D. MFSK

E2E05 ECLM Page (8 - 12)

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A. PACTOR

B. RTTY

C. PSK31

D. MFSK

(A) E2E05 ECLM Page (8 - 12)

What is the most common data rate used for HF packet?

A. 48 baud

B. 110 baud

C. 300 baud

D. 1200 baud

E2E06 ECLM Page (8 - 12)

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B. 110 baud

C. 300 baud

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(C) E2E06 ECLM Page (8 - 12)

Which of the following is a possible reason that attempts to initiate contact with a digital station on a clear frequency are unsuccessful?

A. Your transmit frequency is incorrect

B. The protocol version you are using is not supported by the digital station

C. Another station you are unable to hear is using the frequency

D. All these choices are correct

E2E07 ECLM Page (8 - 14)

Which of the following is a possible reason that attempts to initiate contact with a digital station on a clear frequency are unsuccessful?

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(D) E2E07 ECLM Page (8 - 14)

Which of the following HF digital modes can be used to transfer binary files?

A. Hellschreiber

B. PACTOR

C. RTTY

D. AMTOR

E2E08 ECLM Page (8 - 12)

Which of the following HF digital modes can be used to transfer binary files?

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B. PACTOR

C. RTTY

D. AMTOR

(B) E2E08 ECLM Page (8 - 12)

Which of the following HF digital modes uses variable-length coding for bandwidth efficiency?

A. RTTY

B. PACTOR

C. MT63

D. PSK31

E2E09 ECLM Page (8 - 7)

Which of the following HF digital modes uses variable-length coding for bandwidth efficiency?

A. RTTY

B. PACTOR

C. MT63

D. PSK31

(D) E2E09 ECLM Page (8 - 7)

Which of these digital modes has the narrowest bandwidth?

A. MFSK16

B. 170-Hz shift, 45-baud RTTY

C. PSK31

D. 300-baud packet

E2E10 ECLM Page (8 - 11)

Which of these digital modes has the narrowest bandwidth?

A. MFSK16

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C. PSK31

D. 300-baud packet

(C) E2E10 ECLM Page (8 - 11)

What is the difference between direct FSK and audio FSK?

A. Direct FSK applies the data signal to the transmitter VFO, while AFSK transmits tones via phone

B. Direct FSK occupies less bandwidth

C. Direct FSK can transmit faster baud rates

D. Only direct FSK can be decoded by computer

E2E11 ECLM Page (8 - 10)

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(A) E2E11 ECLM Page (8 - 10)

How do ALE stations establish contact?

A. ALE constantly scans a list of frequencies, activating the radio when the designated call sign is received

B. ALE radios monitor an internet site for the frequency they are being paged on

C. ALE radios send a constant tone code to establish a frequency for future use

D. ALE radios activate when they hear their signal echoed by back scatter

E2E12 ECLM Page (8 - 6)

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(A) E2E12 ECLM Page (8 - 6)

Which of these digital modes has the fastest data throughput under clear communication conditions?

A. AMTOR

B. 170 Hz shift, 45 baud RTTY

C. PSK31

D. 300 baud packet

E2E13 ECLM Page (8 - 12)

Which of these digital modes has the fastest data throughput under clear communication conditions?

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(D) E2E13 ECLM Page (8 - 12)