SUBELEMENT T7

Station equipment: common transmitter and receiver problems; antenna measurements; troubleshooting; basic repair and testing

4 Exam Questions - 4 Groups

T7A –

Station equipment: receivers; transmitters; transceivers; modulation; transverters; low power and weak signal operation; transmit and receive amplifiers

The two basic pieces of radio equipment are the transmitter and receiver. A transceiver is a unit combining the functions of a transmitter and a receiver.

They may actually share some common circuitry to make things work.

The ability of a receiver to detect the presence of a signal is called sensitivity. The ability of a receiver to discriminate between multiple signals is call selectivity.

A mixer is used to convert a radio signal from one frequency to another.

T7A01

Which term describes the ability of a receiver to detect the presence of a signal?

A. Linearity

B. Sensitivity

C. Selectivity

D. Total Harmonic Distortion

T7A01

Which term describes the ability of a receiver to detect the presence of a signal?

B. Sensitivity

T7A04

Which term describes the ability of a receiver to discriminate between multiple signals?

A. Discrimination ratio

B. Sensitivity

C. Selectivity

D. Harmonic Distortion

T7A04

Which term describes the ability of a receiver to discriminate between multiple signals?

C. Selectivity

T7A02

What is a transceiver?

A. A type of antenna switch

B. A unit combining the functions of a transmitter and a receiver

C. A component in a repeater which filters out unwanted interference

D. A type of antenna matching network

T7A02

What is a transceiver?

B. A unit combining the functions of a transmitter and a receiver

T7A03

Which of the following is used to convert a radio signal from one frequency to another?

A. Phase splitter

B. Mixer

C. Inverter

D. Amplifier

T7A03

Which of the following is used to convert a radio signal from one frequency to another?

B. Mixer

The oscillator is the name of a circuit that generates a signal of a desired frequency. All transmitters and transceivers have an oscillator circuit.

While the oscillator is an important part of the transmitter, other circuitry is needed in order to use speech rather than CW.

One would use modulation to combine speech with an RF carrier signal.

The push to talk function which switches between receive and transmit, is called the PTT in ham radio lingo.

T7A05

What is the name of a circuit that generates a signal of a desired frequency?

A. Reactance modulator

B. Product detector

C. Low-pass filter

D. Oscillator

T7A05

What is the name of a circuit that generates a signal of a desired frequency?

D. Oscillator

T7A08

Which of the following describes combining speech with an RF carrier signal?

A. Impedance matching

B. Oscillation

C. Modulation

D. Low-pass filtering

T7A08

Which of the following describes combining speech with an RF carrier signal?

C. Modulation

T7A07

What is meant by term “PTT”?

A. Pre-transmission tuning to reduce transmitter harmonic emission

B. Precise tone transmissions used to limit repeater access to only certain signals

C. A primary transformer tuner use to match antennas

D. The push to talk function which switches between receive and transmit

T7A07

What is meant by term “PTT”?

D. The push to talk function which switches between receive and transmit

Many hams use a multi-mode VHF transceiver for VHF weak-signal communications.

Since many HF transceivers do not cover the VHF bands, one could also use a Transverter.

For example, one could use the output of a low-powered 28 MHz SSB exciter and produce a 222 MHz output signal using a transverter.

T7A06

What device takes the output of a low-powered 28 MHz SSB exciter and produces a 222 MHz output signal?

A. High-pass filter
B. Low-pass filter
C. Transverter
D. Phase converter

T7A06

What device takes the output of a low-powered 28 MHz SSB exciter and produces a 222 MHz output signal?

C. Transverter

T7A09

Which of the following devices is most useful for VHF weak-signal communication?

A. A quarter-wave vertical antenna

B. A multi-mode VHF transceiver

C. An omni-directional antenna

D. A mobile VHF FM transceiver

T7A09

Which of the following devices is most useful for VHF weak-signal communication?

B. A multi-mode VHF transceiver

The first purchase a new ham makes is often a handheld radio. It is often used in the car as a mobile radio.

The low power of a handheld may not be suitable for some mobile operations.

An RF power amplifier is a device that increases the low-power output from a handheld transceiver.

Another problem may be that the hand held transceiver may not be sensitive enough to hear the weaker signals.

In this case, an RF preamplifier may be installed between the antenna and receiver.

Note that if this is done with a handheld radio or a transceiver, then some switching will be required so that the preamplifier is not in the line when transmitting.

Most commercial preamplifiers include this feature.

T7A10

What device increases the low-power output from a handheld transceiver?

A. A voltage divider

B. An RF power amplifier

C. An impedance network

D. All of these choices are correct

T7A10

What device increases the low-power output from a handheld transceiver?

B. An RF power amplifier

T7A11

Where is an RF preamplifier installed?

A. Between the antenna and receiver

B. At the output of the transmitter's power amplifier

C. Between a transmitter and antenna tuner

D. At the receiver's audio output

T7A11

Where is an RF preamplifier installed?

A. Between the antenna and receiver

T7B –

Common transmitter and receiver problems: symptoms of overload and overdrive; distortion; causes of interference; interference and consumer electronics; part 15 devices; over and under modulation; RF feedback; off frequency signals; fading and noise; problems with digital communications interfaces

Dealing with neighborhood interference issues can be problematic at best. Interference issues can go both ways.

You may interfere with a neighbor's telephone, radio, or TV; however, some of his devices may interfere with your enjoyment of amateur radio.

Generally, neighbors do not understand or care for the technical reasons they are having interference.

They just want the problem solved! Being a good neighbor is part of being a good ham. Patients and understanding benefit both parties.

If someone tells you that your transmissions are interfering with their radio or TV reception make sure that your station is operating properly and that it does not cause interference to your own television.

Fundamental overload is not a problem with your transmitter.

The receiver is unable to reject strong signals outside the AM or FM band.

This would cause a broadcast AM or FM radio to receive an amateur radio transmission unintentionally.

Overload of a non-amateur radio or TV receiver by an amateur signal can be reduced or eliminated by blocking the amateur signal with a filter at the antenna input of the affected receiver.

A first step in resolving inference to a cable TV from your ham radio transmissions is to be sure all TV coaxial connectors are installed properly.

One way to reduce or eliminate interference by an amateur transmitter to a nearby telephone would be to put a RF filter on the telephone.

Causes of Radio Frequency Interference:

- Fundamental overload
- Harmonics
- Spurious emissions.
- All of these choices are correct

Unlike fundamental overload, harmonics and spurious emissions are problems with the transmitter. Filters can eliminate harmonics. Proper transmitter adjustments will solve spurious emission problems.

The following may be useful in correcting a radio frequency interference problem:

- Snap-on ferrite chokes
- Low-pass and high-pass filters
- Band-reject and band-pass filters.
- All of these choices are correct

A Part 15 device is an unlicensed device that may emit low powered radio signals on frequencies used by a licensed service.

If a "Part 15" device in your neighbor’s home is causing harmful interference to your amateur station:

- Work with your neighbor to identify the offending device
- Politely inform your neighbor about the rules that require him to stop using the device if it causes interference
- Check your station and make sure it meets the standards of good amateur practice.
- All these choices are correct

T7B02

What would cause a broadcast AM or FM radio to receive an amateur radio transmission unintentionally?

A. The receiver is unable to reject strong signals outside the AM or FM band

B. The microphone gain of the transmitter is turned up too high

C. The audio amplifier of the transmitter is overloaded

D. The deviation of an FM transmitter is set too low

T7B02

What would cause a broadcast AM or FM radio to receive an amateur radio transmission unintentionally?

A. The receiver is unable to reject strong signals outside the AM or FM band

T7B03

Which of the following may be a cause of radio frequency interference?

A. Fundamental overload

B. Harmonics

C. Spurious emissions

D. All of these choices are correct

T7B03

Which of the following may be a cause of radio frequency interference?

D. All of these choices are correct

T7B04

Which of the following is a way to reduce or eliminate interference by an amateur transmitter to a nearby telephone?

A. Put a filter on the amateur transmitter

B. Reduce the microphone gain

C. Reduce the SWR on the transmitter transmission line

D. Put a RF filter on the telephone

T7B04

Which of the following is a way to reduce or eliminate interference by an amateur transmitter to a nearby telephone?

D. Put a RF filter on the telephone

T7B05

How can overload of a non-amateur radio or TV receiver by an amateur signal be reduced or eliminated?

A. Block the amateur signal with a filter at the antenna input of the affected receiver

B. Block the interfering signal with a filter on the amateur transmitter

C. Switch the transmitter from FM to SSB

D. Switch the transmitter to a narrow-band mode

T7B05

How can overload of a non-amateur radio or TV receiver by an amateur signal be reduced or eliminated?

A. Block the amateur signal with a filter at the antenna input of the affected receiver

T7B06

Which of the following actions should you take if a neighbor tells you that your station's transmissions are interfering with their radio or TV reception?

A. Make sure that your station is functioning properly and that it does not cause interference to your own radio or television when it is tuned to the same channel

B. Immediately turn off your transmitter and contact the nearest FCC office for assistance

C. Tell them that your license gives you the right to transmit and nothing can be done to reduce the interference

D. Install a harmonic doubler on the output of your transmitter and tune it until the interference is eliminated

T7B06

Which of the following actions should you take if a neighbor tells you that your station's transmissions are interfering with their radio or TV reception?

A. Make sure that your station is functioning properly and that it does not cause interference to your own radio or television when it is tuned to the same channel

T7B12

What might be the first step to resolve cable TV interference from your ham radio transmission?

A. Add a low pass filter to the TV antenna input

B. Add a high pass filter to the TV antenna input

C. Add a preamplifier to the TV antenna input

D. Be sure all TV coaxial connectors are installed properly

T7B12

What might be the first step to resolve cable TV interference from your ham radio transmission?

D. Be sure all TV coaxial connectors are installed properly

T7B07

Which of the following may be useful in correcting a radio frequency interference problem?

A. Snap-on ferrite chokes

B. Low-pass and high-pass filters

C. Band-reject and band-pass filters

D. All of these choices are correct

T7B07

Which of the following may be useful in correcting a radio frequency interference problem?

D. All of these choices are correct

T7B08

What should you do if something in a neighbor's home is causing harmful interference to your amateur station?

A. Work with your neighbor to identify the offending device

B. Politely inform your neighbor about the rules that prohibit the use of devices which cause interference

C. Check your station and make sure it meets the standards of good amateur practice

D. All of these choices are correct

T7B08

What should you do if something in a neighbor's home is causing harmful interference to your amateur station?

D. All of these choices are correct

T7B09

What is a Part 15 device?

A. An unlicensed device that may emit low powered radio signals on frequencies used by a licensed service

B. A type of amateur radio that can legally be used in the citizen’s band

C. A device for long distance communications using special codes sanctioned by the International Amateur Radio Union

D. A type of test set used to determine whether a transmitter is in compliance with FCC regulation 91.15

T7B09

What is a Part 15 device?

A. An unlicensed device that may emit low powered radio signals on frequencies used by a licensed service

If you are told your FM handheld or mobile transceiver is over deviating talk farther away from the microphone.

Remember the distortion from turning the microphone gain up too high? You can reduce the microphone gain to solve this problem, but on many radios the gain control is on the inside of the radio.

One way to solve the problem is simply to “back off the Mic”.

If another operator reports a variable high-pitched whine on the audio from your mobile transmitter, noise on the vehicle's electrical system is being transmitted along with your speech audio.

This could be the alternator whine discussed earlier. It affects the transmitter as well as the receiver Remember: Connect your power cable directly to the battery. Do not use accessory sockets!

If you receive a report that your signal through the repeater is distorted or unintelligible:

- Your transmitter may be slightly off frequency,
- Your batteries may be running low,
- You could be in a bad location.
- All of these choices are correct

Reports of garbled, distorted, or unintelligible transmissions can be caused by RF feedback in a transmitter or transceiver.

T7B10

What might be the problem if you receive a report that your audio signal through the repeater is distorted or unintelligible?

A. Your transmitter may be slightly off frequency

B. Your batteries may be running low

C. You could be in a bad location

D. All of these choices are correct

T7B10

What might be the problem if you receive a report that your audio signal through the repeater is distorted or unintelligible?

D. All of these choices are correct

T7B01

What can you do if you are told your FM handheld or mobile transceiver is over-deviating?

A. Talk louder into the microphone

B. Let the transceiver cool off

C. Change to a higher power level

D. Talk farther away from the microphone

T7B01

What can you do if you are told your FM handheld or mobile transceiver is over-deviating?

D. Talk farther away from the microphone

T7B11

What is a symptom of RF feedback in a transmitter or transceiver?

A. Excessive SWR at the antenna connection

B. The transmitter will not stay on the desired frequency

C. Reports of garbled, distorted, or unintelligible transmissions

D. Frequent blowing of power supply fuses

T7B11

What is a symptom of RF feedback in a transmitter or transceiver?

C. Reports of garbled, distorted, or unintelligible transmissions

T7C –
Antenna measurements and troubleshooting: measuring SWR; dummy loads; coaxial cables; feed line failure modes

Many hams spend much of their "radio activity" experimenting with different kinds of antennas.

This is a lot of fun and considering today's world of miniaturization of radio components, antenna building is still an easy "do it yourself" adventure.

To keep your antenna tuned properly, a few pieces of test equipment are quite valuable and not too costly.

A dummy load is a good piece to start with. While it does not test an antenna, it does take the place of one for testing purposes.

A dummy load consists of a non-inductive resistor and a heat sink.

The primary purpose of a dummy load is to prevent the radiation of signals when making tests. A dummy load is shielded so that test signals do not go far.

An antenna analyzer can be used to determine if an antenna is resonant at the desired operating frequency.

These are quite pricey however and one can do just fine with an SWR meter. An SWR meter, obviously, measures SWR.

In general terms, standing wave ratio (SWR) is a measure of how well a load is matched to a transmission line.

A 1 to 1 reading on an SWR meter indicates a perfect impedance match between the antenna and the feedline.

Amateur Radio Transmitters are designed for an impedance of 50 ohms.

The idea when adjusting an antenna is to tune the antenna for an impedance of 50 ohms giving you a perfect match of 1 to 1.

2 to 1 is the approximate SWR value above which the protection circuits in most solid-state transmitters Start to reduce transmitter power.

An SWR of 4:1 means there is an impedance mismatch.

As an alternative to the SWR meter you could use a **directional wattmeter** to determine if a feedline and antenna are properly matched.

You measure the power going to the antenna.

Then you can reverse the Wattmeter circuit and measure the power coming back from the antenna.

The less power coming back, the better the match.

T7C13

What does a dummy load consist of?

A. A high-gain amplifier and a TR switch
B. A non-inductive resistor and a heat sink
C. A low voltage power supply and a DC relay
D. A 50 ohm reactance used to terminate a transmission line

T7C13
What does a dummy load consist of?

B. A non-inductive resistor and a heat sink

T7C01

What is the primary purpose of a dummy load?

A. To prevent the radiation of signals when making tests

B. To prevent over-modulation of your transmitter

C. To improve the radiation from your antenna

D. To improve the signal to noise ratio of your receiver

T7C01

What is the primary purpose of a dummy load?

A. To prevent the radiation of signals when making tests

T7C02

Which of the following instruments can be used to determine if an antenna is resonant at the desired operating frequency?

A. A VTVM

B. An antenna analyzer

C. A Q meter

D. A frequency counter

T7C02

Which of the following instruments can be used to determine if an antenna is resonant at the desired operating frequency?

B. An antenna analyzer

T7C03

What, in general terms, is standing wave ratio (SWR)?

A. A measure of how well a load is matched to a transmission line

B. The ratio of high to low impedance in a feed line

C. The transmitter efficiency ratio

D. An indication of the quality of your station’s ground connection

T7C03

What, in general terms, is standing wave ratio (SWR)?

A. A measure of how well a load is matched to a transmission line

T7C04

What reading on an SWR meter indicates a perfect impedance match between the antenna and the feed line?

A. 2 to 1

B. 1 to 3

C. 1 to 1

D. 10 to 1

T7C04

What reading on an SWR meter indicates a perfect impedance match between the antenna and the feed line?

C. 1 to 1

T7C05

What is the approximate SWR value above which the protection circuits in most solid-state transmitters begin to reduce transmitter power?

A. 2 to 1
B. 1 to 2
C. 6 to 1
D. 10 to 1

T7C05

What is the approximate SWR value above which the protection circuits in most solid-state transmitters begin to reduce transmitter power?

A. 2 to 1

T7C06

What does an SWR reading of 4:1 indicate?

A. Loss of -4dB

B. Good impedance match

C. Gain of +4dB

D. Impedance mismatch

T7C06

What does an SWR reading of 4:1 indicate?

D. Impedance mismatch

T7C08

What instrument other than an SWR meter could you use to determine if a feed line and antenna are properly matched?

A. Voltmeter

B. Ohmmeter

C. Iambic pentameter

D. Directional wattmeter

T7C08

What instrument other than an SWR meter could you use to determine if a feed line and antenna are properly matched?

D. Directional wattmeter

Coaxial cable is commonly used for carrying RF signals between a radio and antenna.

The 50 ohms provides a good match for the antenna and transmitter, as long as both are also adjusted for 50 ohms.

The outer jacket of coaxial cable should be resistant to ultraviolet light because ultraviolet light can damage the jacket and allow water to enter the cable.

If the SWR is too high, there is power lost in the coaxial feedline. Power lost in a feedline is converted into heat.

The most common cause for failure of coaxial cable is moisture contamination.

This is usually due to the outer jacket of the cable not being resistant to ultraviolet light or poor weather proofing of outside cables connectors attached to antennas.

Easily preventable but often ignored.

A disadvantage of "air core" coaxial cable, when compared to foam or solid dielectric types is that it requires special techniques to prevent water absorption.

T7C07

What happens to power lost in a feed line?

A. It increases the SWR

B. It comes back into your transmitter and could cause damage

C. It is converted into heat

D. It can cause distortion of your signal

T7C07

What happens to power lost in a feed line?

C. It is converted into heat

T7C09

Which of the following is the most common cause for failure of coaxial cables?

A. Moisture contamination

B. Gamma rays

C. The velocity factor exceeds 1.0

D. Overloading

T7C09

Which of the following is the most common cause for failure of coaxial cables?

A. Moisture contamination

T7C10

Why should the outer jacket of coaxial cable be resistant to ultraviolet light?

A. Ultraviolet resistant jackets prevent harmonic radiation

B. Ultraviolet light can increase losses in the cable's jacket

C. Ultraviolet and RF signals can mix together, causing interference

D. Ultraviolet light can damage the jacket and allow water to enter the cable

T7C10

Why should the outer jacket of coaxial cable be resistant to ultraviolet light?

D. Ultraviolet light can damage the jacket and allow water to enter the cable

T7C11

What is a disadvantage of air core coaxial cable when compared to foam or solid dielectric types?

A. It has more loss per foot

B. It cannot be used for VHF or UHF antennas

C. It requires special techniques to prevent water absorption

D. It cannot be used at below freezing temperatures

T7C11

What is a disadvantage of air core coaxial cable when compared to foam or solid dielectric types?

C. It requires special techniques to prevent water absorption

T7C12

Which of the following is a common use of coaxial cable?

A. Carrying dc power from a vehicle battery to a mobile radio

B. Carrying RF signals between a radio and antenna

C. Securing masts, tubing, and other cylindrical objects on towers

D. Connecting data signals from a TNC to a computer

T7C12

Which of the following is a common use of coaxial cable?

B. Carrying RF signals between a radio and antenna

T7D –

Basic repair and testing: soldering; using basic test instruments; connecting a voltmeter, ammeter, or ohmmeter

For the exam, you will need to know a little bit about various test equipment.

Hams are noted for being able to repair their own equipment. Certainly, it would be a very valuable tool during an emergency.

While today's modern equipment is complicated, there are still a few things you can check for yourself.

A **voltmeter** is an instrument you would use to measure electric potential or electromotive force. Remember that electromotive force is measured in volts.

The correct way to connect a voltmeter to a circuit is in parallel with the circuit.

If you are checking the voltage of the battery, the negative lead of the voltmeter (black lead) goes to the minus side of the battery and the positive lead of the voltmeter (red lead) goes to the plus side of the battery.

If checking a circuit, the negative lead would normally go to the circuits main ground while the positive lead would go to the part of the circuit in which the voltage needs checked.

Precautions should be taken when measuring high voltages with a voltmeter.

Ensure that the voltmeter and leads are rated for use at the voltages to be measured.

An ammeter is used to measure current being drawn by a circuit. You would connect an ammeter in series with the circuit.

T7D01

Which instrument would you use to measure electric potential or electromotive force?

A. An ammeter

B. A voltmeter

C. A wavemeter

D. An ohmmeter

T7D01

Which instrument would you use to measure electric potential or electromotive force?

B. A voltmeter

T7D02

What is the correct way to connect a voltmeter to a circuit?

A. In series with the circuit

B. In parallel with the circuit

C. In quadrature with the circuit

D. In phase with the circuit

T7D02

What is the correct way to connect a voltmeter to a circuit?

B. In parallel with the circuit

There will be times that one needs to know how much current is being used by a circuit.

An ammeter is an instrument used to measure electric current. An ammeter is usually connected to a circuit in series with the circuit.

For example, if you wished to see how much current was being drawn by a light bulb powered by a battery, the ammeter would be placed in series between the battery positive and the light bulb.

T7D03

How is an ammeter usually connected to a circuit?

A. In series with the circuit
B. In parallel with the circuit
C. In quadrature with the circuit
D. In phase with the circuit

T7D03

How is an ammeter usually connected to a circuit?

A. In series with the circuit

T7D12

Which of the following precautions should be taken when measuring high voltages with a voltmeter?

A. Ensure that the voltmeter has very low impedance

B. Ensure that the voltmeter and leads are rated for use at the voltages to be measured

C. Ensure that the circuit is grounded through the voltmeter

D. Ensure that the voltmeter is set to the correct frequency

T7D12

Which of the following precautions should be taken when measuring high voltages with a voltmeter?

B. Ensure that the voltmeter and leads are rated for use at the voltages to be measured

T7D04

Which instrument is used to measure electric current?

A. An ohmmeter

B. A wavemeter

C. A voltmeter

D. An ammeter

T7D04

Which instrument is used to measure electric current?

D. An ammeter

An ohmmeter is an instrument used to measure resistance.

When an ohmmeter is connected across a circuit and initially indicates a low resistance and then shows increasing resistance with time, the circuit contains a large capacitor.

A precaution taken when measuring circuit resistance with an ohmmeter is to ensure that the circuit is not powered. Otherwise you may damage the meter.

Voltage and resistance are measurements commonly made using a multimeter.

Attempting to measure voltage when using the resistance setting might damage a multimeter.

T7D05

What instrument is used to measure resistance?

A. An oscilloscope

B. A spectrum analyzer

C. A noise bridge

D. An ohmmeter

T7D05

What instrument is used to measure resistance?

D. An ohmmeter

T7D06

Which of the following might damage a multimeter?

A. Measuring a voltage too small for the chosen scale

B. Leaving the meter in the milliamps position overnight

C. Attempting to measure voltage when using the resistance setting

D. Not allowing it to warm up properly

T7D06

Which of the following might damage a multimeter?

C. Attempting to measure voltage when using the resistance setting

T7D07

Which of the following measurements are commonly made using a multimeter?

A. SWR and RF power

B. Signal strength and noise

C. Impedance and reactance

D. Voltage and resistance

T7D07

Which of the following measurements are commonly made using a multimeter?

D. Voltage and resistance

T7D10

What is probably happening when an ohmmeter, connected across an unpowered circuit, initially indicates a low resistance and then shows increasing resistance with time?

A. The ohmmeter is defective

B. The circuit contains a large capacitor

C. The circuit contains a large inductor

D. The circuit is a relaxation oscillator

T7D10

What is probably happening when an ohmmeter, connected across an unpowered circuit, initially indicates a low resistance and then shows increasing resistance with time?

B. The circuit contains a large capacitor

T7D11

Which of the following precautions should be taken when measuring circuit resistance with an ohmmeter?

A. Ensure that the applied voltages are correct

B. Ensure that the circuit is not powered

C. Ensure that the circuit is grounded

D. Ensure that the circuit is operating at the correct frequency

T7D11

Which of the following precautions should be taken when measuring circuit resistance with an ohmmeter?

B. Ensure that the circuit is not powered

Many hams enjoy building their own equipment. One of the skills required to do this is good soldering techniques.

Even if you do not like to build your own equipment, there will come a time when you have to solder connecters on a cable, or repair an antenna.

Soldering is an easy skill to learn and with practice, most hams can do an acceptable job.

You will want to use the correct solder when doing a project. Rosin-core solder is best for radio and electronic use.

When soldering, one needs to get the connection to be soldered hot enough to melt the solder.

Do not run solder down the soldering iron. That creates a cold solder joint. Just let it flow over the connection.

A grainy or dull surface is the characteristic appearance of a "cold" solder joint.

T7D08

Which of the following types of solder is best for radio and electronic use?

A. Acid-core solder

B. Silver solder

C. Rosin-core solder

D. Aluminum solder

T7D08

Which of the following types of solder is best for radio and electronic use?

C. Rosin-core solder

T7D09

What is the characteristic appearance of a cold solder joint?

A. Dark black spots

B. A bright or shiny surface

C. A grainy or dull surface

D. A greenish tint

T7D09

What is the characteristic appearance of a cold solder joint?

C. A grainy or dull surface