

Basic Qualification Question Bank for Amateur Radio Operator Certificate Examinations

Interference & Suppression



B-008-01-03 (3)

If a neighbour reports television interference whenever you transmit, no matter what band you use, what is probably the cause of the interference?

- Incorrect antenna length
- Receiver VR tube discharge
- Receiver overload
- Too little transmitter harmonics suppression

B-008-01-04 (1)

What type of filter should be connected to a TV receiver as the first step in trying to prevent RF overload from an amateur HF station transmission?

- High-pass
- Low-pass
- Band-pass
- No filter

B-008-01-05 (2)

When the signal from a transmitter overloads the audio stages of a broadcast receiver, the transmitted signal:

is distorted on voice peaks
can appear wherever the receiver is tuned
appears only on one frequency
appears only when a station is tuned

B-008-01-06 (2)

Cross-modulation of a broadcast receiver by a nearby transmitter would be noticed in the receiver as:

interference only when a broadcast signal is tuned
the undesired signal in the background
of the desired signal distortion on transmitted voice peaks
interference continuously across the dial

B-008-01-07 (4)

What is cross-modulation interference?

Interference between two transmitters of different modulation type
Interference caused by audio rectification in the receiver reamplifier
Harmonic distortion of the transmitted signal
Modulation from an unwanted signal is heard in addition to the desired signal

B-008-01-08 (2)

What is the term used to refer to the condition where the signals from a very strong station are superimposed on other signals being received?

Receiver quieting
Cross-modulation interference
Capture effect
Intermodulation distortion

B-008-01-09 (4)

What is the result of cross-modulation?

Receiver quieting
A decrease in modulation level of transmitted signals
Inverted sidebands in the final stage of the amplifier
The modulation of an unwanted signal is heard on the desired signal

B-008-01-10 (3)

If a television receiver suffers from cross-modulation when a nearby amateur transmitter is operating at 14 MHz, which of the following cures might be effective?

- A low pass filter attached to the antenna output of the transmitter
- A high pass filter attached to the antenna output of the transmitter
- A high pass filter attached to the antenna input of the television
- A low pass filter attached to the antenna input of the television

B-008-01-11 (1)

How can cross-modulation be reduced?

- By installing a suitable filter at the receiver
- By using a better antenna
- By increasing the receiver RF gain while decreasing the AF gain
- By adjusting the passband tuning

B-008-02-01 (3)

What devices would you install to reduce or eliminate audio-frequency interference to home entertainment systems?

- Bypass resistors
- Metal-oxide varistors
- Bypass capacitors
- Bypass inductors

B-008-02-02 (3)

What should be done if a properly operating amateur station is the cause of interference to a nearby telephone?

- Ground and shield the local telephone distribution amplifier
- Stop transmitting whenever the telephone is in use
- Ask the telephone company to install RFI filters
- Make internal adjustments to the telephone equipment

B-008-02-03 (3)

What sound is heard from a public address system if audio rectification of a nearby single-sideband phone transmission occurs?

- Clearly audible speech from the transmitter's signals
- On-and-off humming or clicking
- Distorted speech from the transmitter's signals
- A steady hum whenever the transmitter's carrier is on the air

B-008-02-04 (4)

What sound is heard from a public address system if audio rectification of a nearby CW transmission occurs?

- Audible, possibly distorted speech
- Muffled, severely distorted speech
- A steady whistling
- On-and-off humming or clicking

B-008-02-05 (3)

How can you minimize the possibility of audio rectification of your transmitter's signals?

- By installing bypass capacitors on all power supply rectifiers
- By using CW emission only
- By ensuring that all station equipment is properly grounded
- By using a solid-state transmitter

B-008-02-06 (2)

An amateur transmitter is being heard across the entire dial of a broadcast receiver. The receiver is most probably suffering from:

- harmonics interference from the transmitter
- cross-modulation or audio rectification in the receiver
- poor image rejection
- splatter from the transmitter

B-008-02-07 (1)

Cross-modulation is usually caused by:

- rectification of strong signals
- harmonics generated at the transmitter
- improper filtering in the transmitter
- lack of receiver sensitivity and selectivity

B-008-02-08 (4)

What device can be used to minimize the effect of RF pickup by audio wires connected to stereo speakers, intercom amplifiers, telephones, etc.?

- Magnet
- Attenuator
- Diode
- Ferrite core

B-008-02-09 (1)

Stereo speaker leads often act as antennas to pick up RF signals. What is one method you can use to minimize this effect?

- Shorten the leads
- Lengthen the leads
- Connect the speaker through an audio attenuator
- Connect a diode across the speaker

B-008-02-10 (3)

One method of preventing RF from entering a stereo set through the speaker leads is to wrap each of the speaker leads around a:

- copper bar
- iron bar
- ferrite core
- wooden dowel

B-008-02-11 (4)

Stereo amplifiers often have long leads which pick up transmitted signals because they act as:

- transmitting antennas
- RF attenuators
- frequency discriminators
- receiving antennas

B-008-03-01 (2)

How can you prevent key-clicks?

- By increasing power
- By using a key-click filter
- By using a better power supply
- By sending CW more slowly

B-008-03-02 (1)

If someone tells you that signals from your hand-held transceiver are interfering with other signals on a frequency near yours, what may be the cause?

- Your hand-held may be transmitting spurious emissions
- You may need a power amplifier for your hand-held
- Your hand-held may have chirp from weak batteries
- You may need to turn the volume up on your hand-held

B-008-03-03 (3)

If your transmitter sends signals outside the band where it is transmitting, what is this called?

Side tones

Transmitter chirping

Spurious emissions

Off-frequency emissions

B-008-03-04 (2)

What problem may occur if your transmitter is operated without the cover and other shielding in place?

It may transmit a weak signal

It may transmit spurious emissions

It may interfere with other stations operating near its frequency

It may transmit a chirpy signal

B-008-03-05 (1)

In Morse code transmission, local RF interference (key-clicks) is produced by:

the making and breaking of the circuit at the Morse key

frequency shifting caused by poor voltage regulation

the power amplifier, and is caused by high frequency parasitics

poor waveshaping caused by a poor voltage regulator

B-008-03-06 (2)

Key-clicks, heard from a Morse code transmitter at a distant receiver, are the result of:

power supply hum modulating the carrier

too sharp rise and decay times of the carrier

sparks emitting RF from the key contacts

changes in oscillator frequency on keying

B-008-03-07 (4)

In a Morse code transmission, local RF interference (key-clicks) is produced by:

shift in frequency when keying the transmitter

sparking at the key contacts

sudden movement in the receiver loudspeaker

poor shaping of the waveform

B-008-03-08 (1)

Key-clicks can be suppressed by:

inserting a choke and a capacitor at the key

turning the receiver down

regulating the oscillator supply voltage

using a choke in the RF power output

B-008-03-09 (4)

A parasitic oscillation:

is generated by parasitic elements of a Yagi beam
does not cause any radio interference
is produced in a transmitter oscillator stage
is an unwanted signal developed in a transmitter

B-008-03-10 (1)

Parasitic oscillations in the RF power amplifier stage of a transmitter may be found:

at high or low frequencies
on harmonic frequencies
at high frequencies only
at low frequencies only

B-008-03-11 (3)

Transmitter RF amplifiers can generate parasitic oscillations:

on VHF frequencies only
on the transmitter fundamental frequency
on either side of the transmitter frequency
on harmonics of the transmitter frequency

B-008-04-01 (2)

If a neighbour reports television interference on one or two channels only when you transmit on 15 metres, what is probably the cause of the interference?

De ionization of the ionosphere near your neighbour's TV antenna
Harmonic radiation from your transmitter
TV receiver front-end overload
Too much low pass filtering on the transmitter

B-008-04-02 (1)

What is meant by harmonic radiation?

Unwanted signals at frequencies which are multiples of the fundamental (chosen) frequency
Unwanted signals that are combined with a 60-Hz hum
Unwanted signals caused by sympathetic vibrations from a nearby transmitter
Signals which cause skip propagation to occur

B-008-04-03 (4)

Why is harmonic radiation from an amateur station not wanted?

It uses large amounts of electric power

It may cause sympathetic vibrations in nearby transmitters

It may cause auroras in the air

It may cause interference to other stations and may result in out-of-band signals

B-008-04-04 (2)

What type of interference may come from a multi-band antenna connected to a poorly tuned transmitter?

Parasitic excitation

Harmonic radiation

Intermodulation

Auroral distortion

B-008-04-05 (3)

If you are told your station was heard on 21 375 kHz, but at the time you were operating on 7125 kHz, what is one reason this could happen?

Your transmitter's power-supply filter choke was bad

You were sending CW too fast

Your transmitter was radiating harmonic signals

Your transmitter's power-supply filter capacitor was bad

B-008-04-06 (4)

What causes splatter interference?

Keying a transmitter too fast

Signals from a transmitter's output circuit are being sent back to its input circuit

The transmitting antenna is the wrong length

Overmodulation of a transmitter

B-008-04-07 (3)

Your amateur radio transmitter appears to be creating interference to the television on channel 3 (60-66 MHz) when you are transmitting on the 15 metre band. Other channels are not affected. The most likely cause is:

no high-pass filter on the TV

a bad ground at the transmitter

harmonic radiation from the transmitter

front-end overload of the TV

B-008-04-08 (3)

One possible cause of TV interference by harmonics from an SSB transmitter is from "flat topping" - driving the final amplifier into non-linear operation. The most appropriate remedy for this is:

retune transmitter output
use another antenna
reduce microphone gain
reduce oscillator output

B-008-04-09 (4)

In a transmitter, excessive harmonics are produced by:

low SWR
resonant circuits
a linear amplifier
overdriven stages

B-008-04-10 (3)

An interfering signal from a transmitter is found to have a frequency of 57 MHz (TV Channel 2 is 54 - 60 MHz). This signal could be the:

crystal oscillator operating on its fundamental
seventh harmonic of an 80 metre transmission
second harmonic of a 10 metre transmission
third harmonic of a 15 metre transmission

B-008-04-11 (1)

Harmonics may be produced in the RF power amplifier of a transmitter if:

excessive drive signal is applied to it
the output tank circuit is not correctly tuned
the oscillator frequency is unstable
modulation is applied to more than one stage

B-008-05-01 (1)

What type of filter might be connected to an amateur HF transmitter to cut down on harmonic radiation?

A low pass filter
A key-click filter
A high pass filter
A CW filter

B-008-05-02 (3)

Why do modern HF transmitters have a built-in low pass filter in their RF output circuits?

- To reduce fundamental radiation
- To reduce low frequency interference to other amateurs
- To reduce harmonic radiation
- To reduce RF energy below a cut-off point

B-008-05-03 (4)

What circuit blocks RF energy above and below a certain limit?

- A high pass filter
- An input filter
- A low pass filter
- A band pass filter

B-008-05-04 (3)

What should be the impedance of a low pass filter as compared to the impedance of the transmission line into which it is inserted?

- Substantially lower
- Twice the transmission line impedance
- About the same
- Substantially higher

B-008-05-05 (4)

In order to reduce the harmonic output of a high frequency (HF) transmitter, which of the following filters should be installed at the transmitter?

- Band pass
- High pass
- Rejection
- Low pass

B-008-05-06 (2)

To reduce harmonic output from a transmitter, you would put a _____ in the transmission line as close to the transmitter as possible.

- high pass filter
- low pass filter
- band reject filter
- wave trap

B-008-05-07 (4)

To reduce energy from an HF transmitter getting into a television set, you would place a _____ as close to the TV as possible.

low pass filter
wave trap
band reject filter
high pass filter

B-008-05-08 (3)

A band pass filter will:

attenuate high frequencies but not low
pass frequencies each side of a band
allow only certain frequencies through
stop frequencies in a certain band

B-008-05-09 (2)

A band reject filter will:

allow only two frequencies through
pass frequencies each side of a band
pass frequencies below 100 MHz
stop frequencies each side of a band

B-008-05-10 (3)

A high pass filter would normally be fitted:

between microphone and speech amplifier
at the Morse key or keying relay in a transmitter
at the antenna terminals of the TV receiver
between transmitter output and feed line

B-008-05-11 (3)

A low pass filter suitable for a high frequency transmitter would:

pass audio frequencies above 3 kHz
attenuate frequencies below 30 MHz
attenuate frequencies above 30 MHz
pass audio frequencies below 3 kHz