

Basic Qualification Question Bank for Amateur Radio Operator Certificate Examinations

Feedlines and Connectors



B-006-01-01 (3)

What connects your transceiver to your antenna?

- The power cord
- A ground wire
- A feed line
- A dummy load

B-006-01-02 (2)

The characteristic impedance of a transmission line is determined by the:

- length of the line
- physical dimensions and relative positions of the conductors
- frequency at which the line is operated
- load placed on the line

B-006-01-03 (1)

The characteristic impedance of a 20 metre piece of transmission line is 52 ohms. If 10 metres were cut off, the impedance would be:

- 52 ohms
- 26 ohms
- 39 ohms
- 13 ohms

B-006-01-04 (1)

The impedance of a coaxial line:

- can be the same for different diameter line
- changes with the frequency of the energy it carries
- is correct for only one size of line
- is greater for larger diameter line

B-006-01-05 (4)

What commonly available antenna feed line can be buried directly in the ground for some distance without adverse effects?

- 300 ohm twin-lead
- 600 ohm open-wire
- 75 ohm twin-lead
- coaxial cable

B-006-01-06 (4)

The characteristic impedance of a transmission line is:

- the impedance of a section of the line one wavelength long
- the dynamic impedance of the line at the operating frequency
- the ratio of the power supplied to the line to the power delivered to the termination
- equal to the pure resistance which, if connected to the end of the line, will absorb all the power arriving along it

B-006-01-07 (3)

A transmission line differs from an ordinary circuit or network in communications or signaling devices in one very important way. That important aspect is:

- capacitive reactance
- inductive reactance
- propagation delay
- resistance

B-006-01-08 (1)

The characteristic impedance of a parallel wire transmission line does not depend on the:

velocity of energy on the line
radius of the conductors
centre to centre distance between conductors
dielectric

B-006-01-09 (1)

Any length of transmission line may be made to appear as an infinitely long line by:

terminating the line in its characteristic impedance
leaving the line open at the end
shorting the line at the end
increasing the standing wave ratio above unity

B-006-01-10 (1)

What factors determine the characteristic impedance of a parallel-conductor antenna feed line?

The distance between the centres of the conductors and the radius of the conductors
The distance between the centres of the conductors and the length of the line
The radius of the conductors and the frequency of the signal
The frequency of the signal and the length of the line

B-006-01-11 (1)

What factors determine the characteristic impedance of a coaxial antenna feed line?

The ratio of the diameter of the inner conductor to the diameter of the braid
The diameter of the braid and the length of the line
The diameter of the braid and the frequency of the signal
The frequency of the signal and the length of the line

B-006-02-01 (4)

What is a coaxial cable?

Two wires side-by-side in a plastic ribbon
Two wires side-by-side held apart by insulating rods
Two wires twisted around each other in a spiral
A center wire inside an insulating material which is covered by a metal sleeve or shield

B-006-02-02 (4)

What is parallel-conductor feed line?

Two wires twisted around each other in a spiral
A center wire inside an insulating material which is covered by a metal sleeve or shield
A metal pipe which is as wide or slightly wider than a wavelength of the signal it carries
Two wires side-by-side held apart by insulating rods

B-006-02-03 (1)

What kind of antenna feed line is made of two conductors held apart by insulated rods?

- Open-conductor ladder line
- Coaxial cable
- Twin lead in a plastic ribbon
- Twisted pair

B-006-02-04 (2)

What does the term "balun" mean?

- Balanced unloader
- Balanced to unbalanced
- Balanced unmodulator
- Balanced antenna network

B-006-02-05 (1)

Where would you install a balun to feed a dipole antenna with 50-ohm coaxial cable?

- Between the coaxial cable and the antenna
- Between the transmitter and the coaxial cable
- Between the antenna and the ground
- Between the coaxial cable and the ground

B-006-02-06 (4)

What is an unbalanced line?

- Feed line with neither conductor connected to ground
- Feed line with both conductors connected to ground
- Feed line with both conductors connected to each other
- Feed line with one conductor connected to ground

B-006-02-07 (2)

What device can be installed to feed a balanced antenna with an unbalanced feed line?

- A triaxial transformer
- A balun
- A wavetrap
- A loading coil

B-006-02-08 (3)

A flexible coaxial line contains:

- four or more conductors running parallel
- only one conductor
- braid and insulation around a central conductor
- two parallel conductors separated by spacers

B-006-02-09 (1)

A balanced transmission line:

is made of two parallel wires
has one conductor inside the other
carries RF current on one wire only
is made of one conductor only

B-006-02-10 (2)

A 75 ohm transmission line could be matched to the 300 ohm feedpoint of an antenna:

with an extra 250 ohm resistor
by using a 4 to 1 balun
by using a 4 to 1 trigatron
by inserting a diode in one leg of the antenna

B-006-02-11 (3)

What kind of antenna feed line can be constructed using two conductors which are maintained a uniform distance apart using insulated spreaders?

Coaxial cable
75 ohm twin-lead
600 ohm open-wire
300 ohm twin-lead

B-006-03-01 (2)

Why does coaxial cable make a good antenna feed line?

It is weatherproof, and its impedance is higher than that of most amateur antennas
It is weatherproof, and its impedance matches most amateur antennas
It can be used near metal objects, and its impedance is higher than that of most amateur antennas
You can make it at home, and its impedance matches most amateur antennas

B-006-03-02 (3)

What is the best antenna feed line to use, if it must be put near grounded metal objects?

Ladder-line
Twisted pair
Coaxial cable
Twin lead

B-006-03-03 (3)

What are some reasons not to use parallel-conductor feed line?

You must use an impedance-matching device with your transceiver, and it does not work very well with a high SWR

It does not work well when tied down to metal objects, and it cannot operate under high power

It does not work well when tied down to metal objects, and you must use an impedance- matching device with your transceiver

It is difficult to make at home, and it does not work very well with a high SWR

B-006-03-04 (1)

What common connector usually joins RG-213 coaxial cable to an HF transceiver?

A PL-259 connector

An F-type cable connector

A banana plug connector

A binding post connector

B-006-03-05 (1)

What common connector usually joins a hand-held transceiver to its antenna?

A BNC connector

A PL-259 connector

An F-type cable connector

A binding post connector

B-006-03-06 (4)

Which of these common connectors has the lowest loss at UHF?

An F-type cable connector

A BNC connector

A PL-259 connector

A type-N connector

B-006-03-07 (3)

If you install a 6 metre Yagi antenna on a tower 50 metres from your transmitter, which of the following feed lines is best?

RG-174

RG-59

RG-213

RG-58

B-006-03-08 (1)

Why should you regularly clean, tighten and re-solder all antenna connectors?

- To help keep their resistance at a minimum
- To keep them looking nice
- To keep them from getting stuck in place
- To increase their capacitance

B-006-03-09 (3)

What commonly available antenna feed line can be buried directly in the ground for some distance without diverse effects?

- 75 ohm twin-lead
- 600 ohm open-wire
- Coaxial cable
- 300 ohm twin-lead

B-006-03-10 (4)

When antenna feed lines must be placed near grounded metal objects, which of the following feed lines should be used?

- 300 ohm twin-lead
- 600 ohm open-wire
- 75 ohm twin-lead
- Coaxial cable

B-006-03-11 (3)

TV twin-lead feed line can be used for a feed line in an amateur station. The impedance of this line is approximately:

- 600 ohms
- 50 ohms
- 300 ohms
- 70 ohms

B-006-04-01 (4)

Why should you use only good quality coaxial cable and connectors for a UHF antenna system?

- To keep television interference high
- To keep the power going to your antenna system from getting too high
- To keep the standing wave ratio of your antenna system high
- To keep RF loss low

B-006-04-02 (1)

What are some reasons to use parallel conductor feed line?

It will operate with a high SWR, and has less loss than coaxial cable

It has low impedance, and will operate with a high SWR

It will operate with a high SWR, and it works well when tied down to metal objects

It has a low impedance, and has less loss than coaxial cable

B-006-04-03 (2)

If your transmitter and antenna are 15 metres apart, but are connected by 65 metres of RG-58 coaxial cable, what should be done to reduce feed line loss?

Shorten the excess cable so the feed line is an odd number of wavelengths long

Shorten the excess cable

Roll the excess cable into a coil which is as small as possible

Shorten the excess cable so the feed line is an even number of wavelengths long

B-006-04-04 (2)

As the length of a feed line is changed, what happens to signal loss?

Signal loss decreases as length increases

Signal loss increases as length increases

Signal loss is the least when the length is the same as the signal's wavelength

Signal loss is the same for any length of feed line

B-006-04-05 (2)

As the frequency of a signal is changed, what happens to signal loss in a feed line?

Signal loss increases with decreasing frequency

Signal loss increases with increasing frequency

Signal loss is the least when the signal's wavelength is the same as the feed line's length

Signal loss is the same for any frequency

B-006-04-06 (2)

Losses occurring on a transmission line between transmitter and antenna results in:

an SWR reading of 1:1

less RF power being radiated

reflections occurring in the line

the wire radiating RF energy

B-006-04-07 (1)

The lowest loss feed line on HF is:

open-wire

75 ohm twin-lead

coaxial cable

300 ohm twin-lead

B-006-04-08 (4)

In what values are RF feed line losses expressed?

- ohms per MHz
- dB per MHz
- ohms per metre
- dB per unit length

B-006-04-09 (1)

If the length of coaxial feed line is increased from 20 metres (65.6 ft) to 40 metres (131.2 ft), how would this affect the line loss?

- It would be increased by 100%
- It would be reduced by 10%
- It would be increased by 10%
- It would be reduced to 50%

B-006-04-10 (4)

If the frequency is increased, how would this affect the loss on a transmission line?

- It is independent of frequency
- It would increase
- It depends on the line length
- It would decrease

B-006-05-01 (1)

What does an SWR reading of 1:1 mean?

- The best impedance match has been attained
- An antenna for another frequency band is probably connected
- No power is going to the antenna
- The SWR meter is broken

B-006-05-02 (1)

What does an SWR reading of less than 1.5:1 mean?

- A fairly good impedance match
- An impedance match which is too low
- An impedance mismatch; something may be wrong with the antenna system
- An antenna gain of 1.5

B-006-05-03 (3)

What kind of SWR reading may mean poor electrical contact between parts of an antenna system?

- A negative reading
- No reading at all
- A jumpy reading
- A very low reading

B-006-05-04 (2)

What does a very high SWR reading mean?

The transmitter is putting out more power than normal, showing that it is about to go bad
The antenna is the wrong length, or there may be an open or shorted connection somewhere in the feed line
There is a large amount of solar radiation, which means very poor radio conditions
The signals coming from the antenna are unusually strong, which means very good radio conditions

B-006-05-05 (1)

What does standing-wave ratio mean?

The ratio of maximum to minimum voltages on a feed line
The ratio of maximum to minimum inductances on a feed line
The ratio of maximum to minimum resistances on a feed line
The ratio of maximum to minimum impedances on a feed line

B-006-05-06 (4)

If your antenna feed line gets hot when you are transmitting, what might this mean?

You should transmit using less power
The conductors in the feed line are not insulated very well
The feed line is too long
The SWR may be too high, or the feed line loss may be high

B-006-05-07 (4)

If the characteristic impedance of the feedline does not match the antenna input impedance then:

heat is produced at the junction
the SWR reading falls to 1:1
the antenna will not radiate any signal
standing waves are produced in the feedline

B-006-05-08 (4)

The result of the presence of standing waves on a transmission line is:

perfect impedance match between transmitter and feedline
maximum transfer of energy to the antenna from the transmitter
lack of radiation from the transmission line
reduced transfer of RF energy to the antenna

B-006-05-09 (1)

An SWR meter measures the degree of match between transmission line and antenna by:

comparing forward and reflected voltage
measuring radiated RF energy
measuring the conductor temperature
inserting a diode in the feed line

B-006-05-10 (3)

A resonant antenna having a feed point impedance of 200 ohms is connected to a feed line and transmitter which have an impedance of 50 ohms. What will the standing wave ratio of this system be?

6:1

3:1

4:1

5:1

B-006-05-11 (2)

The type of feed line best suited to operating at a high standing wave ratio is:

75 ohm twin-lead

600 ohm open-wire

coaxial line

300 ohm twin-lead