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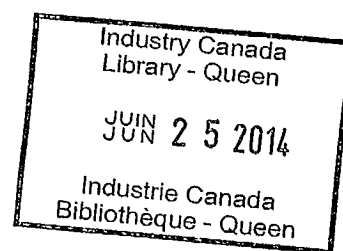
Industrie
Canada

RIC-7
Issue 3
April 2007

Spectrum Management and Telecommunications

Radiocommunication Information Circular

Basic Qualification Question Bank for Amateur Radio Operator Certificate Examinations



Aussi disponible en français - CIR-7

Canada

Radiocommunication Information Circulars are issued for the guidance of those engaged in radiocommunications in Canada. The information contained in these circulars is subject to change without notice. It is therefore suggested that interested persons consult the nearest district office of Industry Canada for additional details. While every reasonable effort has been made to ensure accuracy, no warranty is expressed or implied. As well, these circulars have no status in law.

Comments and suggestions may be directed to the following address:

Industry Canada
Radiocommunications and
Broadcasting Regulatory Branch
300 Slater Street
Ottawa, Ontario
K1A 0C8

Attention: DOSP

via e-mail: spectrum_pubs@ic.gc.ca

All spectrum publications are available on the Internet at:
<http://strategis.ic.gc.ca/spectrum>

Foreword

This circular contains the questions that will be used effective April 1, 2007, for making *Basic Qualification* examinations for the *Amateur Radio Operator Certificate*. The correct choice of the four suggested answers appears in brackets following each question identifier.
i.e. A-001-01-01 (4)

Candidates for amateur radio operator certificate examinations are encouraged to contact the following amateur radio organizations for information on study material.

Radio Amateurs of Canada
720 Belfast Road, Suite 217
Ottawa, Ontario
K1G 0Z5
www.rac.ca

Instructions for examiners are contained in Radiocommunication Information Circular RIC-1, *Guide for Examiners Accredited to Conduct Examinations for the Amateur Radio Operator Certificate*.

Radio Amateur du Québec inc.
4545 Pierre-de-Coubertin Avenue
C.P. 1000, Succursale M
Montréal, Quebec
H1V 3R2
www.raqi.qc.ca

B-001-01-01 (1)
Authority to make
"Radiocommunication Regulations" is
derived from:
the Radiocommunication Act
the General Radio Regulations
the Standards for the Operation of Radio
Stations in the Amateur Radio Service
the ITU Radio Regulations

B-001-01-02 (2)
Authority to make "Standards for the
Operation of Radio Stations in the
Amateur Radio Service" is derived from:
the General Radio Regulations
the Radiocommunication Act
the Standards for the Operation of Radio
Stations in the Amateur Radio Service
the ITU Radio Regulations

B-001-01-03 (2)
The Department that is responsible for
the administration of the
Radiocommunication Act is:
Transport Canada
Industry Canada
Communications Canada
National Defense

B-001-01-04 (4)
The "amateur radio service" is defined
in:
the Radiocommunication Act
the Standards for the Operation of Radio
Stations in the Amateur Radio Service
the General Radio Regulations
the Radiocommunication Regulations

B-001-02-01 (3)
What must you do to notify your mailing
address changes?
Telephone your local club, and give
them your new address
Contact an accredited examiner and
provide details of your address change

Contact Industry Canada and provide
details of your address change
Write amateur organizations advising
them of your new address, enclosing
your licence

B-001-02-02 (4)
An Amateur Radio Operator Certificate
is valid for:
five years
three years
one year
for life

B-001-02-03 (3)
Whenever a change of address is made:
Industry Canada must be notified within
14 days of operation at the new address
the station shall not be operated until a
change of address card is forwarded to
Industry Canada
Industry Canada must be advised of any
change in postal address
within the same province, there is no
need to notify Industry Canada

B-001-02-04 (3)
The Amateur Radio Operator Certificate:
must be put on file
must be kept in a safe place
must be retained at the station
must be kept on the person to whom it is
issued

B-001-02-05 (1)
The holder of a radio authorization shall,
at the request of a duly appointed radio
inspector, show the radio authorization,
or a copy thereof, to the inspector,
within ____ hours after the request:
48
12
24
72

B-001-02-06 (1)

The fee for an Amateur Radio Operator Certificate is:

free

\$32

\$10

\$24

B-001-02-07 (4)

The Amateur Radio Operator Certificate should be:

retained in a safety deposit box

retained on the radio amateur's person

retained in the radio amateur's vehicle

retained at the address notified to

Industry Canada

B-001-03-01 (3)

Out of amateur band transmissions:
must be identified with your call sign
are permitted

are prohibited - penalties could be

assessed to the control operator

are permitted for short tests only

B-001-03-02 (4)

If an amateur pretends there is an
emergency and transmits the word
"MAYDAY," what is this called?

A traditional greeting in May

An emergency test transmission

Nothing special: "MAYDAY" has no
meaning in an emergency

False or deceptive signals

B-001-03-03 (1)

A person found guilty of transmitting a
false or fraudulent distress signal, or
interfering with, or obstructing any radio
communication, without lawful cause,
may be liable, on summary conviction,
to a penalty of:

a fine, not exceeding \$5 000, or a prison
term of one year, or both

a fine of \$10 000

a prison term of two years

a fine of \$1 000

B-001-03-04 (3)

Which of the following statements is
NOT correct?

No person shall decode an encrypted
subscription programming signal
without permission of the lawful
distributor

No person shall, without lawful excuse,
interfere with or obstruct any
radiocommunication

A person may decode an encrypted
subscription programming signal, and
retransmit it to the public

No person shall send, transmit, or cause
to be transmitted, any false or fraudulent
distress signal

B-001-03-05 (3)

Which of the following is NOT correct?
The Minister may suspend a radio
authorization:

where the holder has contravened the
Act, the Regulations, or the terms and
conditions of the authorization

where the radio authorization was
obtained through misrepresentation
with no notice, or opportunity to make
representation thereto

where the holder has failed to comply
with a request to pay fees or interest due

B-001-03-06 (2)

Which of the following statements is NOT correct?

Where entry is refused, and is necessary to perform his duties under the Act, a radio inspector may obtain a warrant
A radio inspector may enter a dwelling without the consent of the occupant and without a warrant

In executing a warrant, a radio inspector shall not use force, unless accompanied by a peace officer, and force is authorized

The person in charge of a place entered by a radio inspector shall give the inspector information that the inspector requests

B-001-03-07 (4)

The Minister may suspend or revoke a radio authorization WITHOUT NOTICE:

where the radio authorization was obtained through misrepresentation
where the holder has contravened the Act or Regulations

where the holder has contravened the terms and conditions of the authorization
where the holder has failed to comply with a request to pay fees or interest due

B-001-04-01 (3)

What age must you be to hold an Amateur Radio Operator Certificate with Basic Qualification?

70 years or younger

18 years or older

There are no age limits

14 years or older

B-001-04-02 (1)

Which examinations must be passed before an Amateur Radio Operator Certificate is issued?

Basic

12 w.p.m.

5 w.p.m.

Advanced

B-001-04-03 (2)

The holder of an Amateur Digital Radio Operator's Certificate:

has equivalency for the Basic qualification

has equivalency for the Basic and Advanced qualifications

has equivalency for the Basic and 12 w.p.m. qualifications

has equivalency for the Basic, Advanced and 12 w.p.m. qualifications

B-001-04-04 (4)

After an Amateur Radio Operator Certificate with Basic qualifications is issued, the holder may be examined for additional qualifications in the following order:

12 w.p.m. after passing the Advanced

5 w.p.m. after passing the 12 w.p.m.

Advanced after the 5 w.p.m.

any order

B-001-04-05 (4)

Two Morse code qualifications are available for the Amateur Radio Operator Certificate. They are:

5 and 10 w.p.m.

7 and 12 w.p.m.

7 and 15 w.p.m.

5 and 12 w.p.m.

B-001-04-06 (4)

The holder of an Amateur Radio Operator Certificate with the Basic Qualification is authorized to operate following stations:

- a station authorized in the aeronautical service
- a station authorized in the maritime service
- any authorized station except stations authorized in the amateur, aeronautical or maritime services
- a station authorized in the amateur service

B-001-05-01 (1)

Radio apparatus may be installed, placed in operation, repaired or maintained by the holder of an Amateur Radio Operator Certificate with Advanced Qualification on behalf of another person:

- if the other person is the holder of a radio authorization to operate in the amateur radio service
- pending the granting of a radio authorization, if the apparatus covers the amateur and commercial frequency bands
- pending the granting of a radio authorization, if the apparatus covers the amateur frequency bands only
- if the transmitter of a station, for which a radio authorization is to be applied for, is type approved and crystal controlled

B-001-05-02 (1)

The holder of an Amateur Radio Operator Certificate may build transmitting equipment for use in the amateur radio service provided that person has the:

- Advanced qualification
- Morse code 12 w.p.m. qualification
- Morse code 5 w.p.m. qualification
- Basic qualification

B-001-05-03 (4)

Where a friend is not the holder of any type of radio operator certificate, you, as a holder of an Amateur Radio Operator Certificate with Basic Qualification, may, on behalf of your friend:

- install an amateur station, but not operate or permit the operation of the apparatus
- install and operate the radio apparatus, using your own call sign
- modify and repair the radio apparatus but not install it
- not install, place in operation, modify, repair, maintain, or permit the operation of the radio apparatus

B-001-05-04 (1)

A radio amateur with Basic and 12 w.p.m. Morse qualifications may install an amateur station for another person:

- only if the other person is the holder of a valid Amateur Radio Operator Certificate
- only if the final power input does not exceed 100 watts
- only if the station is for use on one of the VHF bands
- only if the DC power input to the final stage does not exceed 200 watts

B-001-06-01 (1)

An amateur station with a maximum input to the final stage of 2 watts:

- must be licensed at all locations
- must be licensed in built-up areas only
- must be licensed in isolated areas only
- is exempt from licensing

B-001-06-02 (3)

An amateur station may be used to communicate with:
any stations which are identified for special contests
armed forces stations during special contests and training exercises
similarly licensed stations
any station transmitting in the amateur bands

B-001-06-03 (4)

Which of the following statements is NOT correct?

A radio amateur may not transmit superfluous signals

A radio amateur may not transmit profane or obscene language or messages

A radio amateur may not operate, or permit to be operated, a radio apparatus which he knows is not performing to the Radiocommunication Regulations

A radio amateur may use his linear amplifier to amplify the output of a licence-exempt transmitter

B-001-06-04 (3)

Which of the following statements is NOT correct?

No person shall possess or operate any device, for the purpose of amplifying the output power of a licence-exempt radio apparatus

A person may operate or permit the operation of radio apparatus only where the apparatus is maintained to the Radiocommunication Regulations tolerances

A person may operate radio apparatus on the amateur radio bands only to transmit superfluous signals

A person may operate an amateur radio station when the person complies with the Standards for the Operation of Radio Stations in the Amateur Radio Service

B-001-06-05 (1)

Which of the following statements is NOT correct? A person may operate radio apparatus, licensed in the amateur service:

on aeronautical, marine or land mobile frequencies

only where the person complies with the Standards for the Operation of Radio Stations in the Amateur Radio Service
only where the apparatus is maintained within the performance standards set by Industry Canada regulations and policies but not for the amplification of the output power of licence-exempt radio apparatus

B-001-07-01 (4)

Which of the following CANNOT be discussed on an amateur club net?

Recreation planning

Code practice planning

Emergency planning

Business planning

B-001-07-02 (1)

When is a radio amateur allowed to broadcast information to the general public?

Never

Only when the operator is being paid

Only when broadcasts last less than 1 hour

Only when broadcasts last longer than 15 minutes

B-001-07-03 (1)

When may false or deceptive amateur signals or communications be transmitted?

Never

When operating a beacon transmitter in a "fox hunt" exercise

When playing a harmless "practical joke"

When you need to hide the meaning of a message for secrecy

B-001-07-04 (1)

Which of the following one-way communications may not be transmitted in the amateur service?

Broadcasts intended for the general public

Telecommands to model craft

Brief transmissions to make adjustments to the station

Morse code practice

B-001-07-05 (1)

When may you send indecent or profane words from your amateur station?

Never

Only when they do not cause interference to other communications
Only when they are not retransmitted through a repeater

Any time, but there is an unwritten rule among amateurs that they should not be used on the air

B-001-07-06 (3)

When may an amateur station in two-way communication transmit a message in a secret code in order to obscure the meaning of the communication?

During a declared communications emergency

During contests

Never

When transmitting above 450 MHz

B-001-07-07 (4)

What are the restrictions on the use of abbreviations or procedural signals in the amateur service?

There are no restrictions

They are not permitted because they obscure the meaning of a message to government monitoring stations

Only "10 codes" are permitted

They may be used if they do not obscure the meaning of a message

B-001-07-08 (4)

What should you do to keep you station from retransmitting music or signals from a non- amateur station?

Turn up the volume of your transmitter

Speak closer to the microphone to increase your signal strength

Adjust your transceiver noise blanker

Turn down the volume of background audio

B-001-07-09 (3)

The transmission of a secret code by the operator of an amateur station:

is permitted for contests

must be approved by Industr Canada

is not permitted

is permitted for third-part traffic

B-001-07-10 (2)

A radio amateur may be engaged in communication which include the transmission of:

programming that originates from a broadcasting undertakin

Q signals

radiocommunication in support of industrial, business, or professional activities

commercially recorded material

B-001-07-11 (4)

An amateur station may transmit:

profane or obscene words or language
music

secret codes or ciphers

signals which are not superfluous

B-001-08-01 (1)

Where may the holder of an Amateur Radio Operator Certificate operate an amateur radio station in Canada?
anywhere in Canada
anywhere in Canada during times of emergency
only at the address shown on Industry Canada records
anywhere in your call sign prefix area

B-001-08-02 (1)

Which type of station may transmit one-way communications?
Beacon station
Repeater station
HF station
VHF station

B-001-08-03 (1)

Amateur radio operators may install or operate radio apparatus:
at any location in Canada
only at the address which is on record at Industry Canada
at the address which is on record at Industry Canada and at one other location
at the address which is on record at Industry Canada and in two mobiles

B-001-08-04 (2)

In order to install any radio apparatus, to be used specifically for receiving and automatically retransmitting radiotelephone communications within the same frequency band, a radio amateur must hold an Amateur Radio Operator Certificate, with a minimum of these qualifications:
Basic and 12 w.p.m. Morse qualifications
Basic and Advanced qualifications
Basic Qualification
Basic and 5 w.p.m. Morse qualifications

B-001-08-05 (1)

In order to install any radio apparatus, to be used specifically for an amateur radio club station, the radio amateur must hold an Amateur Radio Operator Certificate, with a minimum of the following qualifications:
Basic and Advanced
Basic, Advanced and 5 w.p.m.
Basic
Basic, Advanced, and 12 w.p.m.

B-001-08-06 (4)

In order to install or operate a transmitter or RF amplifier that is not commercially manufactured for use in the amateur service, a radio amateur must hold an Amateur Operator's Certificate, with a minimum of which qualifications?
Basic, Advanced and 12 w.p.m.
Basic, and 12 w.p.m.
Basic, Advanced and 5 w.p.m.
Basic and Advanced

B-001-09-01 (2)

Who is responsible for the proper operation of an amateur station?
Only the station owner who is the holder of an Amateur Radio Operator Certificate
Both the control operator and the station licensee
The person who owns the station equipment
Only the control operator

B-001-09-02 (2)

If you transmit from another amateur's station, who is responsible for its proper operation?
You, the control operator
Both of you
The station owner, unless the station records show that you were the control operator at the time
The station owner

B-001-09-03 (4)

What is your responsibility as a station owner?

You must allow another amateur to operate your station upon request

You must be present whenever the station is operated

You must notify Industry Canada if another amateur acts as the control operator

You are responsible for the proper operation of the station in accordance with the regulations

B-001-09-04 (2)

Who may be the control operator of an amateur station?

Any person over 21 years of age with a Basic Qualification

Any qualified amateur chosen by the station owner

Any person over 21 years of age with Basic and 12 w.p.m. qualifications

Any person over 21 years of age

B-001-09-05 (3)

When must an amateur station have a control operator?

A control operator is not needed

Whenever the station receiver is operated

Whenever the station is transmitting

Only when training another amateur

B-001-09-06 (4)

When a station is transmitting, where must its control operator be?

Anywhere in the same building as the transmitter

At the station's entrance, to control entry to the room

Anywhere within 50 km of the station location

At the station's control point

B-001-09-07 (4)

Why can't family members without qualifications transmit using your amateur station if they are alone with your equipment?

They must not use your equipment without your permission

They must first know how to use the right abbreviations and Q signals

They must first know the right frequencies and emissions for transmitting

They must hold suitable amateur radio qualifications before they are allowed to be control operators

B-001-09-08 (3)

The owner of an amateur station may: permit anyone to take part in communications only if prior written permission is received from Industry Canada

permit anyone to use the station without restrictions

permit any person to operate the station under the supervision and in the presence of the holder of the amateur operator certificate

permit anyone to use the station and take part in communications

B-001-09-09 (3)

Which of the following statements is CORRECT?

A person, holding only Basic

Qualification, may operate another station on 14.2 MHz

radio amateur may permit any person to operate the station without supervision

Any person may operate an amateur station under supervision, and in the presence of, a person holding appropriate qualifications

Any person may operate a station in the amateur radio service

B-001-10-01 (1)

What is a transmission called that disturbs other communications?

Harmful interference

Interrupted CW

Transponder signals

Unidentified transmissions

B-001-10-02 (1)

When may you deliberately interfere with another station's communications?

Never

Only if the station is operating illegally

Only if the station begins transmitting on a frequency you are using

You may expect, and cause, deliberate interference because it can't be helped during crowded band conditions

B-001-10-03 (1)

If the regulations say that the amateur service is a secondary user of a frequency band, and another service is a primary user, what does this mean?

Amateurs are allowed to use the frequency band only if they do not cause interference to primary users

Nothing special: all users of a frequency band have equal rights to operate

Amateurs are only allowed to use the frequency band during emergencies

Amateurs must increase transmitter power to overcome any interference caused by primary users

B-001-10-04 (1)

What rule applies if two amateur stations want to use the same frequency?

Both station operators have an equal right to operate on the frequency

The station operator with a lesser class of licence must yield the frequency to a higher-class licensee

The station operator with a lower power output must yield the frequency to the station with a higher power output

Station operators in ITU Regions 1 and 3 must yield the frequency to stations in ITU Region 2

B-001-10-05 (4)

What name is given to a form of interference that seriously degrades, obstructs or repeatedly interrupts a radiocommunication service?

Intentional interference

Adjacent interference

Disruptive interference

Harmful interference

B-001-10-06 (3)

Where interference to the reception of radiocommunications is caused by the operation of an amateur station:

the amateur station operator is not obligated to take any action

the amateur station operator may continue to operate without restrictions

the Minister may require that the necessary steps for the prevention of the interference be taken by the radio amateur

the amateur station operator may continue to operate and the necessary steps can be taken when the amateur operator can afford it

B-001-10-07 (3)

Radio amateur operation must not cause interference to other radio services operating in which of the following bands?

7.0 to 7.1 MHz

144.0 to 148.0 MHz

430.0 to 450.0 MHz

14.0 to 14.2 MHz

B-001-10-08 (4)

Radio amateur operations are not protected from interference caused by another service operating in which of the following frequency bands?

144 to 148 MHz

220 to 225 MHz

50 to 54 MHz

902 to 928 MHz

B-001-10-09 (3)

Which of the following is NOT correct?

The operator of an amateur station:
shall not cause harmful interference to a station in another service which has primary use of that band
may conduct technical experiments using the station apparatus
may make trials or tests, even though there is a possibility of interfering with other stations
may make trials or tests, except under circumstances that preclude the possibility of interference with other stations

B-001-11-01 (3)

Amateur radio stations may communicate:
with anyone who uses international Morse code
with non amateur stations
with any station involved in a real or simulated emergency
only with other amateur stations

B-001-11-02 (2)

In the amateur radio service, business communications:

Are permitted on some bands

are not permitted under any circumstance

are only permitted if they are for the safety of life or immediate protection of property

are not prohibited by regulation

B-001-11-03 (3)

If you hear an unanswered distress signal on a amateur band where you do not have privileges to communicate:
you may offer assistance using international Morse code only
you may offer assistance after contacting Industry Canada for permission to do so
you should offer assistance
you may not offer assistance

B-001-11-04 (4)

In the amateur radio service, it is permissible to broadcast:
music
commercially recorded material
programming that originates from a broadcast undertaking
radio communications required for the immediate safety of life of individuals or the immediate protection of property

B-001-11-05 (3)

An amateur radio station in distress may:
only use radiocommunication bands for which the operator is qualified to use
use any means of radiocommunication, but only on internationally recognized emergency channels
any means of radiocommunication
only Morse code communications on internationally recognized emergency channels

B-001-11-06 (2)

During a disaster, when may an amateur station make transmissions necessary to meet essential communication needs and assist relief operations?

Never: only official emergency stations may transmit in a disaster

When normal communication systems are overloaded, damaged or disrupted

When normal communication systems are working but are not convenient

Only when the local emergency net is activated

B-001-11-07 (3)

During an emergency, what power output limitations must be observed by a station in distress?

1000 watts PEP during daylight hours, reduced to 200 watts PEP during the night

1500 watts PEP

There are no limitations during an emergency

200 watts PEP

B-001-11-08 (4)

During a disaster:

use only frequencies in the 80 metre band

use only frequencies in the 40 metre band

use any United Nations approved frequency

most communications are handled by nets using predetermined frequencies in amateur bands. Operators not directly involved with disaster communications are requested to avoid making unnecessary transmissions on or near frequencies being used for disaster communications

B-001-11-09 (4)

Messages from recognized public service agencies may be handled by amateur radio stations:

using Morse code only

when Industry Canada has issued a special authorization

only on the 7 and 14 MHz band

during peace time and civil emergencies and exercises

B-001-11-10 (4)

It is permissible to interfere with the working of another station if:

the other station is not operating according to the Radiocommunication Regulations

you both wish to contact the same station

the other station is interfering with your transmission

your station is directly involved with a distress situation

B-001-12-01 (3)

What kind of payment is allowed for third-party messages sent by an amateur station?

Donation of amateur equipment

Donation of equipment repairs

No payment of any kind is allowed

Any amount agreed upon in advance

B-001-12-02 (2)

Radiocommunications transmitted by stations other than a broadcasting station may be divulged or used:

if transmitted by any station using the international Morse code

if it is transmitted by an amateur station

if transmitted in English or French

during peacetime civil emergencies

B-001-12-03 (4)

The operator of an amateur station:
shall charge no less than \$10 for each message that the person transmits or receives
shall charge no more than \$10 for each message that the person transmits or receives
may accept a gift or gratuity in lieu of remuneration for any message that the person transmits or receives
shall not demand or accept remuneration in any form, in respect of a radiocommunication that the person transmits or receives

B-001-12-04 (1)

Which of the following is NOT an exception from the penalties under the Act, for divulging, intercepting or using information obtained through radiocommunication, other than broadcasting?
Where it is to provide information for a journalist
Where it is for the purpose of preserving or protecting property, or for the prevention of harm to a person
Where it is for the purpose of giving evidence in a criminal or civil proceeding in which persons are required to give evidence
Where it is on behalf of Canada, for the purpose of international or national defence or security

B-001-13-01 (2)

Which of the following call signs is a valid Canadian amateur radio callsign?
SM2CAN
VA3XYZ
BY7HY
KA9OLS

B-001-13-02 (1)

How often must an amateur station be identified?
At least every thirty minutes, and at the beginning and at the end of a contact
At the beginning of a contact and at least every thirty minutes after that
At least once during each transmission
At the beginning and end of each transmission

B-001-13-03 (4)

What do you transmit to identify your amateur station?
Your "handle"
Your first name and your location
Your full name
Your call sign

B-001-13-04 (2)

What identification, if any, is required when two amateur stations begin communications?
No identification is required
Each station must transmit its own call sign
Both stations must transmit both call signs
One of the stations must give both stations' call signs

B-001-13-05 (1)

What identification, if any, is required when two amateur stations end communications?
Each station must transmit its own call sign
No identification is required
One of the stations must transmit both stations' call signs
Both stations must transmit both call signs

B-001-13-06 (3)

What is the longest period of time an amateur station can operate, without transmitting its call sign?

20 minutes

15 minutes

30 minutes

10 minutes

B-001-13-07 (4)

When may an amateur transmit unidentified communications?

Only for brief tests not meant as messages

Only if it does not interfere with others

Only for two-way or third-party communications

Never, except to control a model craft

B-001-13-08 (1)

What language may you use when identifying your station?

English or French

Any language being used for a contact

Any language being used for a contact, providing Canada has a third-party communications agreement with that country

Any language of a country which is a member of the International Telecommunication Union

B-001-13-09 (4)

The call sign of an amateur station must be transmitted:

at intervals not greater than three minutes when using voice communications

at intervals not greater than ten minutes when using Morse code

when requested to do so by the station being called

at the beginning and at the end of each exchange of communications and at intervals not greater than 30 minutes

B-001-13-10 (3)

The call sign of an amateur station must be sent:

every minute

every 15 minutes

at the beginning and end of each exchange of communications, and at least every 30 minutes, while in communications

once after initial contact

B-001-13-11 (1)

The call sign of a Canadian amateur radio station would normally start with the letters:

VA, VE, VO or VY

GA, GE, MO or VQ

A, K, N or W

EA, EI, RO or UY

B-001-14-01 (2)

If a non-amateur friend is using your station to talk to someone in Canada, and a foreign station breaks in to talk to your friend, what should you do?

Since you can talk to foreign amateurs, your friend may keep talking as long as you are the control operator

Have your friend wait until you find out if Canada has a third-party agreement with the foreign station's government

Report the incident to the foreign amateur's government

Stop all discussions and quickly sign off

B-001-14-02 (3)

If you let an unqualified third party use your amateur station, what must you do at your station's control point?

You must key the transmitter and make the station identification

You must monitor and supervise the communication only if contacts are made on frequencies below 30 MHz

You must continuously monitor and supervise the third party's participation

You must monitor and supervise the communication only if contacts are made in countries which have no third party communications

B-001-14-03 (3)

Radio amateurs may use their stations to transmit international communications on behalf of a third party only if:

the amateur station has received written authorization from Industry Canada to pass third party traffic

the communication is transmitted by secret code

such communications have been authorized by the countries concerned
prior remuneration has been received

B-001-14-04 (1)

A person operating a Canadian amateur station is forbidden to communicate with amateur stations of another country:

when that country has notified the International Telecommunication Union that it objects to such communications without written permission from Industry Canada

until he has properly identified his station

unless he is passing third- party traffic

B-001-14-05 (2)

International communications on behalf of third parties may be transmitted by an amateur station only if:

English or French is used to identify the station at the end of each transmission
the countries concerned have authorized such communications

the countries for which the traffic is intended have registered their consent to such communications with the ITU
radiotelegraphy is used

B-001-14-06 (4)

Amateur third party communications is:
the transmission of commercial or secret messages

a simultaneous communication between three operators

none of these answers

the transmission of non- commercial or personal messages to or on behalf of a third party

B-001-14-07 (3)

Third-party traffic is:

any message passed by an amateur station

coded communications of any type

a message sent to a non- amateur via an amateur station

any communication between two amateur operators

B-001-14-08 (3)

One of the following is not considered to be communications on behalf of a third party, even though the message is originated by, or addressed to, a non-

amateur:

messages that are handled within a local network

messages addressed to points within Canada

messages originated from Canadian Forces Affiliated Radio Service (CFARS)

all messages received from Canadian stations

B-001-14-09 (1)

One of the following is not considered to be communications on behalf of a third party, even though the message may be originated by, or addressed to, a non-amateur:

messages that originate from the United States Military Affiliated Radio System (MARS)

all messages originated by Canadian amateur stations

messages addressed to points within Canada from the United States

messages that are handled within local networks during a simulated emergency exercise

B-001-14-10 (3)

Which of the following is NOT correct?

While in Canada, the operator of a station licensed by the Government of the United States, shall identify the station using three of these identifiers: by adding to the call sign the Canadian call sign prefix for the geographic location of the station

by radiotelephone, adding to the call sign the word "mobile" or "portable" or by radiotelegraph adding the oblique character "/"

US radio amateurs must obtain a Canadian amateur station licence before operating in Canada

by transmitting the call sign assigned by the FCC

B-001-14-11 (1)

Which of the following statements is NOT correct? A Canadian radio amateur may:

pass third-party traffic with all duly licensed amateur stations in any country which is a member of the ITU

pass messages originating from or destined to the United States Military Affiliated Radio System (MARS)

pass messages originating from or destined to the Canadian Forces Affiliated Radio Service (CFARS) communicate with a similar station of a country which has not notified ITU that it objects to such communications

B-001-15-01 (1)

If you let another amateur with additional qualifications than yours control your station, what operating privileges are allowed?

Only the privileges allowed by your qualifications

Any privileges allowed by the additional qualifications

All the emission privileges of the additional qualifications, but only the frequency privileges of your qualifications

All the frequency privileges of the additional qualifications, but only the emission privileges of your qualifications

B-001-15-02 (4)

If you are the control operator at the station of another amateur who has additional qualifications to yours, what operating privileges are you allowed?

Any privileges allowed by the additional qualifications

All the emission privileges of the additional qualifications, but only the frequency privileges of your qualifications

All the frequency privileges of the additional qualifications, but only the emission privileges of your qualifications

Only the privileges allowed by your qualifications

B-001-15-03 (4)

In addition to passing the Basic written examination, what must you do before you are allowed to use amateur frequencies below 30 MHz?

You must notify Industry Canada that you intend to operate on the HF bands

You must pass a Morse code test

You must attend a class to learn about HF communications

You must pass a Morse code or

Advanced test or attain a mark of 80% on the Basic exam

B-001-15-04 (2)

The licensee of an amateur station may operate radio controlled models:
if the control transmitter does not exceed 15 kHz of occupied bandwidth
on all frequencies above 30 MHz
if the frequency used is below 30 MHz
if only pulse modulation is used

B-001-15-05 (4)

In Canada, the 75/80 metre amateur band corresponds in frequency to:

3.0 to 3.5 MHz

4.0 to 4.5 MHz

4.5 to 5.0 MHz

3.5 to 4.0 MHz

B-001-15-06 (1)

In Canada, the 160 metre amateur band corresponds in frequency to:

1.8 to 2.0 MHz

1.5 to 2.0 MHz

2.0 to 2.25 MHz

2.25 to 2.5 MHz

B-001-15-07 (4)

In Canada, the 40 metre amateur band corresponds in frequency to:

6.5 to 6.8 MHz

6.0 to 6.3 MHz

7.7 to 8.0 MHz

7.0 to 7.3 MHz

B-001-15-08 (1)

In Canada, the 20 meter amateur band corresponds in frequency to:

14.000 to 14.350 MHz

13.500 to 14.000 MHz

15.000 to 15.750 MHz

16.350 to 16.830 MHz

B-001-15-09 (4)

In Canada, the 15 metre amateur band corresponds in frequency to:

18.068 to 18.168 MHz

14.000 to 14.350 MHz

28.000 to 29.700 MHz

21.000 to 21.450 MHz

B-001-15-10 (1)

In Canada, the 10 metre amateur band corresponds in frequency to:

28.000 to 29.700 MHz

24.890 to 24.990 MHz

21.000 to 21.450 MHz

50.000 to 54.000 MHz

B-001-15-11 (3)

In Canada, radio amateurs may use which of the following for radio control of models:

50 to 54 MHz only

all amateur frequency bands

all amateur frequency bands above 30 MHz

50 to 54, 144 to 148, and 220 to 225 MHz only

B-001-16-01 (4)

What is the maximum authorized bandwidth within the frequency range of 50 to 148 MHz?

20 kHz

The total bandwidth shall not exceed that of a single-sideband phone emission

The total bandwidth shall not exceed 10 times that of a CW emission

30 kHz

B-001-16-02 (2)

The maximum bandwidth of an amateur station's transmission allowed in the band 28 to 29.7 MHz is:

- 6 kHz
- 20 kHz
- 30 kHz
- 15 kHz

B-001-16-03 (1)

Except for one band, the maximum bandwidth of an amateur station's transmission allowed below 28 MHz is:

- 6 kHz
- 15 kHz
- 20 kHz
- 30 kHz

B-001-16-04 (3)

The maximum bandwidth of an amateur station's transmission allowed in the band 144 to 148 MHz is:

- 6 kHz
- 20 kHz
- 30 kHz
- 15 kHz

B-001-16-05 (2)

The maximum bandwidth of an amateur station's transmission allowed in the band 50 to 54 MHz is:

- 20 kHz
- 30 kHz
- 6 kHz
- 15 kHz

B-001-16-06 (2)

Only one band of amateur frequencies has a maximum allowed bandwidth of less than 6 kHz. That band is:

- 18.068 to 18.168 MHz
- 10.1 to 10.15 MHz
- 24.89 to 24.99 MHz
- 1.8 to 2.0 MHz

B-001-16-07 (2)

Single sideband is not permitted in the band:

- 18.068 to 18.168 MHz
- 10.1 to 10.15 MHz
- 24.89 to 24.99 MHz
- 7.0 to 7.3 MHz

B-001-16-08 (4)

The bandwidth of an amateur station shall be determined by measuring the frequency band occupied by that signal at a level of ____ dB below the maximum amplitude of that signal:

- 3
- 6
- 36
- 26

B-001-16-09 (3)

Which of the following answers is NOT correct? Based on the bandwidth required, the following modes may be transmitted on these frequencies:

- AMTOR on 14.08 MHz
- packet on 10.145 MHz
- fast-scan television (ATV) on 145 MHz
- fast-scan television (ATV) on 440 MHz

B-001-16-10 (1)

Which of the following answers is NOT correct? Based on the bandwidth required, the following modes may be transmitted on these frequencies:

- fast-scan television (ATV) on 14.23 MHz
- slow-scan television (SSTV) on 14.23 MHz
- frequency modulation (FM) on 29.6 MHz
- single-sideband (SSB) on 3.76 MHz

B-001-16-11 (1)

Which of the following answers is NOT correct? Based on the bandwidth required, the following modes may be transmitted on these frequencies:
single-sideband (SSB) on 10.12 MHz
frequency modulation (FM) on 29.6 MHz
Morse radiotelegraphy (CW) on 10.11 MHz
packet on 10.148 MHz

B-001-17-01 (1)

What amount of transmitter power must radio amateurs use at all times?
The minimum legal power necessary to communicate
25 watts PEP output
250 watts PEP output
2000 watts PEP output

B-001-17-02 (3)

What is the most FM transmitter power a holder of only Basic Qualification may use on 147 MHz?
1000 watts DC input
200 watts PEP output
250 W DC input
25 watts PEP output

B-001-17-03 (2)

At what point in your station is transceiver power measured?
At the final amplifier input terminals inside the transmitter or amplifier
At the antenna terminals of the transmitter or amplifier
On the antenna itself, after the feed line
At the power supply terminals inside the transmitter or amplifier

B-001-17-04 (4)

What is the maximum transmitting output power an amateur station may use on 3750 kHz, if the operator has Basic and 5 w.p.m. qualifications?

1000 watts PEP output for SSB operation
1500 watts PEP output for SSB operation
2000 watts PEP output for SSB operation
560 watts PEP output for SSB operation

B-001-17-05 (2)

What is the maximum transmitting power an amateur station may use for SSB operation on 7055 kHz, if the operator has Basic and 12 w.p.m. qualifications?
1000 watts PEP output
560 watts PEP output
2000 watts PEP output
200 watts PEP output

B-001-17-06 (3)

The DC power input to the anode or collector circuit of the final RF stage of a transmitter, used by a holder of an Amateur Radio Operator Certificate with Advanced Qualification, shall not exceed:
250 watts
500 watts
1000 watts
750 watts

B-001-17-07 (2)

The maximum DC input to the final stage of an amateur transmitter, when the operator is the holder of both the Basic and Advanced qualifications, is:
250 watts
1000 watts
1500 watts
500 watts

B-001-17-08 (3)

The operator of an amateur station, who is the holder of a Basic Qualification, shall ensure that the station power, when expressed as RF output power measured across an impedance matched load, does not exceed:

2500 watts peak power

1000 watts carrier power for transmitters producing other emissions

560 watts peak-envelope power, for transmitters producing any type of single sideband emission

150 watts peak power

B-001-17-09 (3)

The holder of an Amateur Radio Operator Certificate with Basic Qualification is limited to a maximum of _____ watts when expressed as direct current input power to the anode or collector circuit of the transmitter stage supplying radio frequency energy to the antenna :

1000

750

250

100

B-001-18-01 (1)

What kind of amateur station automatically retransmits the signals of other stations?

Repeater station

Space station

Telecommand station

Beacon station

B-001-18-02 (2)

An unmodulated carrier may be transmitted only:

if the output to the final RF amplifier is kept under 5W

for brief tests on frequencies below 30 MHz

when transmitting SSB

in frequency bands below 30 MHz

B-001-18-03 (4)

Radiotelephone signals in a frequency band below _____ MHz cannot be automatically retransmitted, unless these signals are received from a station operated by a person qualified to transmit on frequencies below the above frequency:

29.7 MHz

50 MHz

144 MHz

29.5 MHz

B-001-18-04 (4)

Which of the following statements is NOT correct? Radiotelephone signals may be retransmitted:

in the 29.5-29.7 MHz band, when received in a VHF band, from a station operated by a person with only Basic Qualification.

in the 50-54 MHz frequency band, when received from a station operated by a person with only Basic Qualification in the 144-148 MHz frequency band, when received from a station operated by a person with only Basic Qualification

in the 21 MHz band, when received in a VHF band, from a station operated by a person with only Basic Qualification

B-001-19-01 (3)

When operating on frequencies below 148 MHz:

the bandwidth for any emission must not exceed 3 kHz

the frequency stability of the transmitter must be at least two parts per million over a period of one hour

the frequency stability must be comparable to crystal control
an overmodulation indicator must be used

B-001-19-02 (1)

A reliable means to prevent or indicate overmodulation must be employed at an amateur station if:
radiotelephony is used
DC input power to the anode or collector circuit of the final RF stage is in excess of 250 watts
radiotelegraphy is used
persons other than the licensee use the station

B-001-19-03 (4)

An amateur station using radiotelephony must install a device for indicating or preventing:
resonance
antenna power
plate voltage
overmodulation

B-001-19-04 (2)

The maximum percentage of modulation permitted in the use of radiotelephony by an amateur station is:
75 percent
100 percent
50 percent
90 percent

B-001-19-05 (3)

All amateur stations, regardless of the mode of transmission used, must be equipped with:
a DC power meter
an overmodulation indicating device
a reliable means of determining the operating radio frequency
a dummy antenna

B-001-19-06 (4)

The maximum percentage of modulation permitted in the use of radiotelephony by an amateur station is:
90 percent
75 percent

50 percent
100 percent

B-001-20-01 (3)

What type of messages may be transmitted to an amateur station in a foreign country?
Messages of any type, if the foreign country allows third-party communications with Canada
Messages that are not religious, political, or patriotic in nature
Messages of a technical nature or personal remarks of relative unimportance
Messages of any type

B-001-20-02 (4)

The operator of an amateur station shall ensure that:
communications are exchanged only with commercial stations
all communications are conducted in secret code
charges are properly applied to all third-party communications
communications are limited to messages of a technical or personal nature

B-001-20-03 (3)

Which of the following is NOT a provision of the ITU Radio Regulations which apply to Canadian radio amateurs?

It is forbidden to transmit international messages on behalf of third parties, unless those countries make special arrangements

Radiocommunications between countries shall be forbidden, if the administration of one of the countries objects

Transmissions between countries shall not include any messages of a technical nature, or remarks of a personal character

Administrations shall take such measures as they judge necessary to verify the operational and technical qualifications of amateurs

B-001-20-04 (4)

The ITU Radio Regulations limit those radio amateurs, who have not demonstrated proficiency in Morse code, to frequencies above:

1.8 MHz

3.5 MHz

28 MHz

none of the above

B-001-20-05 (2)

In addition to complying with the Act and Radiocommunication Regulations, Canadian radio amateurs must also comply with the regulations of the:

American Radio Relay League

International Telecommunication Union

Radio Amateurs of Canada Inc.

International Amateur Radio Union

B-001-21-01 (3)

In which International Telecommunication Union Region is Canada?

Region 4

Region 3

Region 2

Region 1

B-001-21-02 (1)

A Canadian radio amateur, operating his station in the state of Florida, is subject to which frequency band limits?

Those applicable to US radio amateurs

ITU Region 2

ITU Region 3

ITU Region 1

B-001-21-03 (3)

A Canadian radio amateur, operating his station 7 kilometres (4 miles) offshore from the coast of Florida, is subject to which frequency band limits?

Those applicable to Canadian radio amateurs

ITU Region 1

Those applicable to US radio amateurs

ITU Region 2

B-001-21-04 (3)

Australia, Japan, and Southeast Asia are in which ITU Region?

Region 4

Region 2

Region 3

Region 1

B-001-21-05 (2)

Canada is located in ITU Region:

region 1

region 2

region 3

region 4

B-001-21-06 (1)

Which of the following answers is NOT correct? Canadian radio amateurs may apply for a CEPT international radio amateur licence for operation in any of the 32 CEPT countries, and: foreign radio amateurs, holding CEPT Class 2 licences, receive the same privileges in Canada as Canadians with Basic and 12 WPM qualifications Canadian radio amateurs, holding Basic and 12 w.p.m. qualifications, will be granted CEPT Class 1 recognition Canadian radio amateurs, holding Basic Qualification only, will be granted CEPT Class 2 recognition (operation only above 30 MHz)

foreign radio amateurs, holding CEPT Class 1 licences, receive the same privileges in Canada as Canadians with Basic and 12 w.p.m. qualifications

B-001-21-07 (3)

Which of the following answers is NOT correct? Canadian radio Canadian CEPT international radio licences for operation in any of the 32 CEPT member amateurs may apply for countries, and:

foreign radio amateurs, holding CEPT Class 1 licences, will receive recognition in Canada equal to Basic and 12 w.p.m. Canadian radio amateurs, holding Basic Qualification only, will be granted CEPT Class 2 recognition (operation above 30 MHz)

foreign radio amateurs, holding CEPT Class 1 licences, will receive recognition in Canada equal to Basic Qualification only

Canadian radio amateurs, holding Basic and 12 w.p.m. qualifications, will be granted CEPT Class 1 recognition

B-001-22-01 (2)

Which of these statements is NOT correct?

The fee for taking an examination for an Amateur Radio Operator Certificate by an accredited volunteer examiner is to be negotiated

The fee for taking an examination for an Amateur Radio Operator Certificate at an Industry Canada office is \$5 per qualification

An accredited volunteer examiner must hold an Amateur Radio Operator Certificate with Basic, Advanced, and 12 w.p.m. qualifications

The fee for taking an examination for an Amateur Radio Operator Certificate at an Industry Canada office is \$20 per qualification

B-001-22-02 (3)

Which of the following statements is NOT correct?

A disabled candidate, taking a Morse code sending test, may be allowed to recite the examination text in Morse code sounds

Examinations for disabled candidates may be given orally, or tailored to the candidate's ability to complete the examination

A disabled candidate must pass a normal amateur radio certificate examination before being granted any qualification

The fee for taking an amateur radio certificate examination from an accredited volunteer examiner is to be negotiated

B-001-22-03 (1)

The fee for taking examinations for amateur radio operator certificates by an accredited volunteer examiner is:

to be negotiated between examiner and candidate

always \$20 per qualification

always free of charge

always \$20 per visit regardless of the number of examinations

B-001-22-04 (4)

The fee for taking amateur radio certificate examinations at an Industry Canada office is:
\$20 per visit, regardless of the number of qualification examinations
no charge for qualification examinations
\$5 per qualification examination
\$20 per qualification

B-001-23-01 (2)

Which of these statements about erection of an antenna structure is NOT correct?
There is no requirement to receive the prior approval from Industry Canada to construct an antenna or its structure
A radio amateur may erect any size antenna structure without consulting neighbours or the local land-use authority
Industry Canada expects radio amateurs to address community concerns in a responsible manner
Prior to an installation, for which community concerns could be raised, radio amateurs must consult with their land-use authority

B-001-23-02 (3)

Which of these statements is NOT correct?
If a radio amateur erects an antenna structure without consulting the land-use authority, he must accept any consequences
For the purposes of environmental filing, amateur stations are considered to be Type 2 (non-site-specific)
For the purposes of environmental filing, amateur stations are considered to be Type 1 (site-specific)
Before installing an antenna structure which could raise community concerns, radio amateurs must consult with the land-use authority

B-001-23-03 (2)

Which of the following statements is NOT correct?
Prior to installing an antenna structure, for which concerns could be raised, radio amateurs must consult their land-use authority
Radio amateurs must secure written permission of Industry Canada before installing an antenna structure
Should an antenna structure be installed without consulting the land-use authority, it must be with the acceptance of consequences
Industry Canada expects radio amateurs to responsibly address any community concerns, and to consider land-use authority requests

B-001-23-04 (2)

Before erecting an antenna structure, for which community concerns could be raised, a radio amateur must consult with:
Industry Canada only
the land-use authority, and possibly the neighbours
Industry Canada and Transport Canada
Industry Canada and the neighbours

B-001-24-01 (4)

What organization has published safety guidelines for the maximum limits of RF energy near the human body?
Canadian Standards Association
Environment Canada
Transport Canada
Health Canada

B-001-24-02 (1)

What is the purpose of the Safety Code 6?

It gives RF exposure limits for the human body

It lists all RF frequency allocations for interference protection

It sets transmitter power limits for interference protection

It sets antenna height limits for aircraft protection

B-001-24-03 (2)

According to Safety Code 6, what frequencies cause us the greatest risk from RF energy?

300 to 3000 MHz

30 to 300 MHz

Above 1500 MHz

3 to 30 MHz

B-001-24-04 (4)

Why is the limit of exposure to RF the lowest in the frequency range of 30 MHz to 300 MHz, according to Safety Code 6?

There are more transmitters operating in this range

There are fewer transmitters operating in this range

Most transmissions in this range are for a longer time

The human body absorbs RF energy the most in this range

B-001-24-05 (2)

According to Safety Code 6, what is the maximum safe power output to the antenna of a hand-held VHF or UHF radio?

10 watts

not specified - the exemption for portable equipment was withdrawn in 1999

25 watts

125 milliwatts

B-001-24-06 (4)

Which of the following statements is NOT correct?

Maximum exposure levels of RF fields to the general population, in the frequency range 10 to 300 MHz, is 28 VRMS/metre (E-field)

Permissible exposure levels of RF fields increases as frequency is increased above 300 MHz

Permissible exposure levels of RF fields increases as frequency is decreased below 10 MHz

Permissible exposure levels of RF fields decreases as frequency is decreased below 10 MHz

B-001-24-07 (2)

The permissible exposure levels of RF fields:

decreases, as frequency is decreased below 10 MHz

increases, as frequency is increased above 300 MHz

increases, as frequency is increased from 10 MHz to 300 MHz

decreases, as frequency is increased above 300 MHz

B-001-24-08 (2)

Which statement is NOT correct:
maximum exposure level of RF fields
for general population, in the range 10 to
300 MHz, is 28 V RMS per metre (E-
field)
portable transmitters, operating below 1
GHz with a power output up to 7 watts,
are excluded from Safety Code 6
requirements

maximum exposure level of RF fields
for general population, in the range 30 to
300 Mhz, is .073 A RMS per metre (H-
field)
the exemption of portable transmitters,
operating below 1 GHz with a power
output up to 7 watts was removed from
Safety Code 6 in 1999

B-001-24-09 (4)

Which statement is correct?
Safety Code 6 regulates the operation of
receivers only
the operation of portable transmitting
equipment is of no concern in Safety
Code 6
portable transmitters, operating below 1
GHz, with an output power equal to, or
less than 7 watts, are exempt from the
requirements of Safety Code 6
the exemption for portable transmitters
was eliminated in Safety Code 6 in 1999

B-001-24-10 (4)

The maximum exposure level of RF
fields for general population, in the
frequency range 10 to 300 MHz is ____ V
RMS per metre (E-field):

7
37
0.073
28

B-001-25-01 (3)

In the event of interference to a
neighbour's FM receiver and stereo

system, if the field strength of the
amateur station signal is below ____
volts per metre, it will be deemed that
the affected equipment's lack of
immunity is the cause:

2.8
7.9
1.83
3.16

B-001-25-02 (2)

In the event of interference to a
neighbour's television receiver, if the
field strength of the amateur station
signal exceeds ____ volts per metre, it
will be deemed that the transmission is
the cause of the problem:

14.2
1.83
28
3.75

B-001-25-03 (3)

Which of the following is defined as
"any device, machinery or equipment,
other than radio apparatus, the use or
functioning of which is, or can be,
adversely affected by
radiocommunication emissions"?
cable television converters
audio and video recorders
radio-sensitive equipment
broadcast receivers

B-001-25-04 (1)

Which of the following types of
equipment is NOT included in the list of
field strength criteria for resolution of
immunity complaints?
broadcast transmitters
broadcast receivers
associated equipment
radio-sensitive equipment

B-002-01-01 (2)

What is a good way to make contact on a repeater?

Say the other operator's name, then your call sign three times

Say the call sign of the station you want to contact, then your call sign

Say, "Breaker, breaker,"

Say the call sign of the station you want to contact three times

B-002-01-02 (2)

What is the main purpose of a repeater?

To link amateur stations with the telephone system

To increase the range of portable and mobile stations

To retransmit weather information during severe storm warnings

To make local information available 24 hours a day

B-002-01-03 (2)

What is an autopatch?

A device which connects a mobile station to the next repeater if it moves out of range of the first

A device that allows repeater users to make telephone calls from their stations

A device which locks other stations out of a repeater when there is an important conversation in progress

Something that automatically selects the strongest signal to be repeated

B-002-01-04 (4)

What is the purpose of a repeater time-out timer?

It lets a repeater have a rest period after heavy use

It logs repeater transmit time to predict when a repeater will fail

It tells how long someone has been using a repeater

It limits the amount of time someone can transmit on a repeater

B-002-01-05 (2)

What is a CTCSS (or PL) tone?

A tone used by repeaters to mark the end of a transmission

A sub-audible tone added to a carrier which may cause a receiver to accept a signal

A special signal used for telemetry between amateur space stations and Earth stations

A special signal used for telecommand control of model craft

B-002-01-06 (1)

How do you call another station on a repeater if you know the station's call sign?

Say the station's call sign, then identify your own station

Say "break, break 79," then say the station's call sign

Say "CQ" three times, then say the station's call sign

Wait for the station to call "CQ", then answer it

B-002-01-07 (4)

Why should you pause briefly between transmissions when using a repeater?

To check the SWR of the repeater

To reach for pencil and paper for third-party communications

To dial up the repeater's autopatch

To listen for anyone else wanting to use the repeater

B-002-01-08 (3)

Why should you keep transmissions short when using a repeater?

To keep long-distance charges down

To give any listening non-hams a chance to respond

A long transmission may prevent someone with an emergency from using the repeater

To see if the receiving station operator is still awake

B-002-01-09 (4)

What is the proper way to break into a conversation on a repeater?

Wait for the end of a transmission and start calling the desired party

Shout, "break, break!" to show that you're eager to join the conversation

Turn on an amplifier and override whoever is talking

Say your call sign during a break between transmissions

B-002-01-10 (2)

What is the proper way to ask someone their location when using a repeater?

What is your 20?

Where are you?

Locations are not normally told by radio

What is your 12?

B-002-01-11 (2)

FM repeater operation on the 2 metre band uses one frequency for transmission and one for reception. The difference in frequency between the transmit and receive frequency is normally:

800 kHz

600 kHz

1 000 kHz

400 kHz

B-002-02-01 (4)

To make your call sign better understood when using voice transmissions, what should you do?

Use any words which start with the same letters as your call sign for each letter of your call

Talk louder

Turn up your microphone gain

Use Standard International Phonetics for each letter of your call sign

B-002-02-02 (2)

What can you use as an aid for correct station identification when using phone?

Q signals

The Standard International Phonetic Alphabet

Unique words of your choice

A speech compressor

B-002-02-03 (1)

What is the Standard International Phonetic for the letter A?

Alpha

Able

Adam

America

B-002-02-04 (2)

What is the Standard International Phonetic for the letter B?

Brazil

Bravo

Borneo

Baker

B-002-02-05 (4)

What is the Standard International Phonetic for the letter D?

Dog

Denmark

David

Delta

B-002-02-06 (4)

What is the Standard International Phonetic for the letter E?

Easy
Edward
England
Echo

B-002-02-07 (1)

What is the Standard International Phonetic for the letter G?

Golf
George
Germany
Gibraltar

B-002-02-08 (3)

What is the Standard International Phonetic for the letter I?

Iran
Italy
India
Item

B-002-02-09 (4)

What is the Standard International Phonetic for the letter L?

Love
London
Luxembourg
Lima

B-002-02-10 (2)

What is the Standard International Phonetic for the letter P?

Portugal
Papa
Paris
Peter

B-002-02-11 (1)

What is the Standard International Phonetic for the letter R?

Romeo
Roger
Radio

Romania

B-002-03-01 (1)

What is the correct way to call "CQ" when using voice?

Say "CQ" three times, followed by "this is," followed by your call sign spoken three times

Say "CQ" once, followed by "this is," followed by your call sign spoken three times

Say "CQ" at least five times, followed by "this is," followed by your call sign spoken once

Say "CQ" at least ten times, followed by "this is," followed by your call sign spoken once

B-002-03-02 (2)

How should you answer a voice CQ call?

Say the other station's call sign at least five times phonetically, followed by "this is," then your call sign twice

Say the other station's call sign once, followed by "this is," then your call sign given phonetically

Say the other station's call sign at least three times, followed by "this is," and your call sign at least five times phonetically

Say the other station's call sign at least ten times, followed by "this is," then your call sign at least twice

B-002-03-03 (4)

What is simplex operation?

Transmitting and receiving over a wide area

Transmitting on one frequency and receiving on another

Transmitting one-way communications

Transmitting and receiving on the same frequency

B-002-03-04 (1)

When should you use simplex operation instead of a repeater?

When a contact is possible without using a repeater

When the most reliable communications are needed

When an emergency telephone call is needed

When you are traveling and need some local information

B-002-03-05 (1)

Why should local amateur communications use VHF and UHF frequencies instead of HF frequencies?
To minimize interference on HF bands capable of long-distance communication
Because greater output power is permitted on VHF and UHF

Because HF transmissions are not propagated locally

Because signals are louder on VHF and UHF frequencies

B-002-03-06 (3)

Why should simplex be used where possible, instead of using a repeater?

Your antenna's effectiveness will be better tested

Long distance toll charges will be avoided

The repeater will not be tied up unnecessarily

Signal range will be increased

B-002-03-07 (3)

If you are talking to a station using a repeater, how would you find out if you could communicate using simplex instead?

See if a third station can clearly receive both of you

See if you can clearly receive a more distant repeater

See if you can clearly receive the station on the repeater's input frequency

See if you can clearly receive the station on a lower frequency band

B-002-03-08 (1)

If you are operating simplex on a repeater frequency, why would it be good amateur practice to change to another frequency?

Changing the repeater's frequency is not practical

The repeater's output power may ruin your station's receiver

There are more repeater operators than simplex operators

Changing the repeater's frequency requires the authorization of Industry Canada

B-002-03-09 (1)

Which sideband is commonly used for 20-metre phone operation?

Upper

Lower

FM

Double

B-002-03-10 (2)

Which sideband is commonly used on 3755 kHz for phone operation?

FM

Lower

Double

Upper

B-002-03-11 (4)

What is the best method to tell if a band is "open" for communication with a particular distant location?

Ask others on your local 2 metre FM repeater

Telephone an experienced local amateur

Look at the propagation forecasts in an amateur radio magazine

Listen for signals from that area from an amateur beacon station or a foreign broadcast or television station on a nearby frequency

B-002-04-01 (2)

What should you do before you transmit on any frequency?

Check your antenna for resonance at the selected frequency

Listen to make sure others are not using the frequency

Make sure the SWR on your antenna feed line is high enough

Listen to make sure that someone will be able to hear you

B-002-04-02 (4)

If you contact another station and your signal is extremely strong and perfectly readable, what adjustment might you make to your transmitter?

Turn on your speech processor

Reduce your SWR

Continue with your contact, making no changes

Turn down your power output to the minimum necessary

B-002-04-03 (4)

What is one way to shorten transmitter tune-up time on the air to cut down on interference?

Use a random wire antenna

Tune up on 40 metres first, then switch to the desired band

Use twin lead instead of coaxial cable feed lines

Tune the transmitter into a dummy load

B-002-04-04 (4)

How can on-the-air interference be minimized during a lengthy transmitter testing or loading-up procedure?

Choose an unoccupied frequency

Use a non-resonant antenna

Use a resonant antenna that requires no loading-up procedure

Use a dummy load

B-002-04-05 (2)

Why would you use a dummy antenna?

To give comparative signal reports

To allow antenna tuning without causing interference

It is faster to tune

To reduce output power

B-002-04-06 (1)

If you are the net control station of a daily HF net, what should you do if the frequency on which you normally meet is in use just before the net begins?

Conduct the net on a frequency 3 to 5 kHz away from the regular net frequency

Reduce your output power and start the net as usual

Increase your power output so that net participants will be able to hear you over the existing activity

Cancel the net for that day

B-002-04-07 (1)

If a net is about to begin on a frequency which you and another station are using, what should you do?

As a courtesy to the net, move to a different frequency

Increase your power output to ensure that all net participants can hear you

Transmit as long as possible on the frequency so that no other stations may use it

Turn off your radio

B-002-04-08 (4)

If propagation changes during your contact and you notice other activity on the same increasing interference from frequency, what should you do?

Tell the interfering stations to change frequency, since you were there first

Report the interference to your local

Amateur Auxiliary Coordinator

Increase the output power of your transmitter to overcome the interference

Move your contact to another frequency

B-002-04-09 (1)

When selecting a single- sideband phone transmitting frequency, what minimum frequency separation from a contact in progress should you allow (between suppressed carriers) to minimize interference?

Approximately 3 kHz

150 to 500 Hz

Approximately 6 kHz

Approximately 10 kHz

B-002-04-10 (2)

What is a band plan?

A plan of operating schedules within an amateur band published by Industry Canada

A guideline for using different operating modes within an amateur band

A plan devised by a club to best use a

frequency band during a contest

A guideline for deviating from amateur frequency band allocations

B-002-04-11 (4)

Before transmitting, the first thing you should do is:

ask if the frequency is occupied

make an announcement on the frequency indicating that you intend to make a call

decrease your receiver's volume

listen carefully so as not to interrupt

communications already in progress

B-002-05-01 (4)

What is the correct way to call "CQ" when using Morse code?

Send the letters "CQ" three times, followed by "DE", followed by your call sign sent once

Send the letters "CQ" ten times, followed by "DE", followed by your call sign sent once

Send the letters "CQ" over and over

Send the letters "CQ" three times, followed by "DE", followed by your call sign sent three times

B-002-05-02 (4)

How should you answer a Morse code "CQ" call?

Send your call sign four times

Send the other station's call sign once, followed by "DE", followed by your call sign four times

Send your call sign followed by your name, station location and a signal report

Send the other station's call sign twice, followed by "DE", followed by your call sign twice

B-002-05-03 (1)

At what speed should a Morse code CQ call be transmitted?

At any speed which you can reliably receive

At any speed below 5 WPM

At the highest speed your keyer will operate

At the highest speed at which you can control the keyer

B-002-05-04 (1)

What is the meaning of the procedural signal "CQ"?

Calling any station

Call on the quarter hour

An antenna is being tested

Only the station "CQ" should answer

B-002-05-05 (2)

What is the meaning of the procedural signal "DE"?

Received all correctly

From

Calling any station

Directional Emissions

B-002-05-06 (2)

What is the meaning of the procedural signal "K"?

End of message

Any station transmit

Called station only transmit

All received correctly

B-002-05-07 (2)

What is meant by the term "DX"?

Calling any station

Distant station

Go ahead

Best regards

B-002-05-08 (4)

What is the meaning of the term "73"?

Long distance

Love and kisses

Go ahead

Best regards

B-002-05-09 (2)

Which of the following describes full break-in telegraphy ?

Automatic keyers are used to send Morse code instead of hand keys

Incoming signals are received between transmitted Morse dots

An operator must activate a manual send/receive switch before and after every transmission

Breaking stations send the Morse code prosign "BK"

B-002-05-10 (1)

When selecting a CW transmitting frequency, what minimum frequency separation from a contact in progress should you allow to minimize interference?

150 to 500 Hz

5 to 50 Hz

1 to 3 kHz

3 to 6 kHz

B-002-05-11 (2)

Good Morse telegraphy operators: always give stations a good readability report

listen to the frequency to make sure that it is not in use before transmitting
save time by leaving out spaces between words

tune the transmitter using the operating antenna

B-002-06-01 (2)

What are "RST" signal reports?

A short way to describe transmitter power

A short way to describe signal reception

A short way to describe sunspot activity

A short way to describe ionospheric conditions

B-002-06-02 (4)

What does "RST" mean in a signal report?

Recovery, signal strength, tempo

Recovery, signal speed, tone

Readability, signal speed, tempo

Readability, signal strength, tone

B-002-06-03 (2)

What is the meaning of: "Your signal report is 5 7"?

Your signal is readable with considerable difficulty

Your signal is perfectly readable and moderately strong

Your signal is perfectly readable with near pure tone

Your signal is perfectly readable, but weak

B-002-06-04 (3)

What is the meaning of: "Your signal report is 3 3 "?

Your signal is unreadable, very weak in strength

The station is located at latitude 33 degrees

Your signal is readable with considerable difficulty and weak in strength

The contact is serial number 33

B-002-06-05 (3)

What is the meaning of: "Your signal report is 5 9 plus 20 dB"?

The bandwidth of your signal is 20 decibels above linearity

Repeat your transmission on a frequency 20 kHz higher

A relative signal-strength meter reading is 20 decibels greater than strength 9

Your signal strength has increased by a factor of 100

B-002-06-06 (3)

What is used to measure relative signal strength in a receiver?

An SSB meter

A signal deviation meter

An S meter

An RST meter

B-002-06-07 (2)

If the power output of a transmitter is increased by four times, how might a nearby receiver's S-meter reading change?

Increase by approximately four S units

Increase by approximately one S unit

Decrease by approximately four S units

Decrease by approximately one S unit

B-002-06-08 (3)

By how many times must the power output of a transmitter be increased to raise the S-meter reading on a nearby receiver from S8 to S9?

Approximately 5 times

Approximately 3 times

Approximately 4 times

Approximately 2 times

B-002-06-09 (1)

What does "RST 579" mean in a Morse code contact?

Your signal is perfectly readable, moderately strong, and with perfect tone

Your signal is perfectly readable, weak strength, and with perfect tone

Your signal is fairly readable, fair strength, and with perfect tone

Your signal is barely readable, moderately strong, and with faint ripple

B-002-06-10 (4)

What does "RST 459" mean in a Morse code contact?

Your signal is very readable, very strong, and with perfect tone

Your signal is barely readable, very weak, and with perfect tone

Your signal is moderately readable, very weak, and with hum on the tone

Your signal is quite readable, fair strength, and with perfect tone

B-002-06-11 (1)

What is the meaning of "Your signal report is 1 1"?

Your signal is unreadable, and barely perceptible

Your signal is 11 dB over S9

Your signal is first class in readability and first class in strength

Your signal is very readable and very strong

B-002-07-01 (4)

What is the meaning of the Q signal "QRS"?

Interference from static

Send "RST" report

Radio station location is:

Send more slowly

B-002-07-02 (3)

What is one meaning of the Q signal "QTH"?

Stop sending

My name is

My location is

Time here is

B-002-07-03 (1)

What is the proper Q signal to use to see if a frequency is in use before transmitting on CW?

QRL?

QRV?

QRU?

QRZ?

B-002-07-04 (3)

What is one meaning of the Q signal "QSY"?

Use more power

Send faster

Change frequency

Send more slowly

B-002-07-05 (2)

What is the meaning of the Q signal "QSO"?

A contact is ending

A contact is in progress

A conversation is desired

A contact is confirmed

B-002-07-06 (1)

What is the proper Q signal to use to ask if someone is calling you on CW?

QRZ?

QSL?

QRL?

QRT?

B-002-07-07 (4)

The signal "QRM" signifies:

I am troubled by static

your signals are fading

is my transmission being interfered with

I am being interfered with

B-002-07-08 (4)

The signal "QRN" means:

I am busy

are you troubled by static

I am being interfered with

I am troubled by static

B-002-07-09 (2)

The "Q signal" indicating that you want the other station to send slower is:

QRM

QRS

QRL

QRN

B-002-07-10 (3)

"Who is calling me" is denoted by the "Q signal":

QRK?

QRP?

QRZ?

QRM?

B-002-07-11 (1)

The "Q signal" which signifies "I will call you again" is:

QRX

QRZ

QRS

QRT

B-002-08-01 (4)

When may you use your amateur station to transmit an "SOS" or "MAYDAY"?

Never

Only at specific times (at 15 and 30 minutes after the hour)

Only in case of a severe weather watch

In a life-threatening distress situation

B-002-08-02 (1)

If you are in contact with another station and you hear an emergency call for help on your frequency, what should you do?

Immediately stop your contact and take the emergency call

Tell the calling station that the frequency is in use

Direct the calling station to the nearest emergency net frequency

Call your local police station and inform them of the emergency call

B-002-08-03 (3)

What is the proper distress call to use when operating phone?

Say "SOS" several times

Say "EMERGENCY" several times

Say "MAYDAY" several times

Say "HELP" several times

B-002-08-04 (3)

What is the proper distress call to use when operating CW?

CQD

QRRR

SOS

MAYDAY

B-002-08-05 (3)

What is the proper way to interrupt a repeater conversation to signal a distress call?

Say "EMERGENCY" three times

Say "SOS," then your call sign

Say "BREAK" twice, then your call sign

Say "HELP" as many times as it takes to get someone to answer

B-002-08-06 (3)

Why is it a good idea to have a way to operate your amateur station without using commercial AC power lines?

So you will comply with rules

So you may operate in contests where AC power is not allowed

So you may provide communications in an emergency

So you may use your station while mobile

B-002-08-07 (1)

What is the most important accessory to have for a hand-held radio in an emergency?

Several sets of charged batteries

An extra antenna

A portable amplifier

A microphone headset for hands-free operation

B-002-08-08 (3)

Which type of antenna would be a good choice as part of a portable HF amateur station that could be set up in case of an emergency?

A parabolic dish

A three-element Yagi

A dipole

A three-element quad

B-002-08-09 (4)

If you are communicating with another amateur station and hear a station in distress break in, what should you do?

Continue your communication because you were on frequency first

Change to a different frequency so the station in distress may have a clear channel to call for assistance

Immediately cease all transmissions because stations in distress have emergency rights to the frequency

Acknowledge the station in distress and determine its location and what assistance may be needed

B-002-08-10 (3)

In order of priority, a distress message comes before:

no other messages

a government priority message

an urgency message

a safety message

B-002-08-11 (1)

If you hear distress traffic and are unable to render assistance you should:

maintain watch until you are certain that assistance will be forthcoming

enter the details in the log book and take no further action

take no action

tell all other stations to cease transmitting

B-002-09-01 (2)

What is a "QSL card"?

A Notice of Violation from Industry Canada

A written proof of communication between two amateurs

A postcard reminding you when your station license will expire

A letter or postcard from an amateur pen pal

B-002-09-02 (4)

What is an azimuthal map?

A map projection centered on the North Pole

A map that shows the angle at which an amateur satellite crosses the equator

A map that shows the number of degrees longitude that an amateur satellite appears to move westward at the equator

A map projection centered on a particular location, used to determine the shortest path between points on the earth's surface

B-002-09-03 (4)

What is the most useful type of map to use when orienting a directional HF antenna toward a distant station?

Mercator

Polar projection

Topographical

Azimuthal

B-002-09-04 (4)

A directional antenna pointed in the long-path direction to another station is generally oriented how many degrees from its short-path heading?

45 degrees

90 degrees

270 degrees

180 degrees

B-002-09-05 (1)

What method is used by radio amateurs to provide written proof of communication between two amateur stations?

A signed post card listing contact date, time, frequency, mode and power, called a "QSL card"

A two-page letter containing a photograph of the operator

A radiogram sent over the CW traffic net

A packet message

B-002-09-06 (3)

You hear other local stations talking to radio amateurs in New Zealand but you don't hear those stations with your beam aimed on the normal compass bearing to New Zealand. What should you try?

Point your antenna toward Newington, CT

Point your antenna to the north

Point your beam 180 degrees away from that bearing and listen for the stations arriving on the "long-path"

Point your antenna to the south

B-002-09-07 (2)

Which statement about recording all contacts and unanswered "CQ calls" in a station logbook or computer log IS NOT correct?

A log is important for recording contacts for operating awards

A logbook is required by Industry Canada

A well-kept log preserves your fondest amateur radio memories for years

A log is important for handling neighbour interference complaints

B-002-09-08 (1)

Why would it be useful to have an azimuthal world map centred on the location of your station?

Because it shows the compass bearing from your station to any place on earth, for antenna planning and pointing

Because it looks impressive

Because it shows the angle at which an amateur satellite crosses the equator

Because it shows the number of degrees longitude that an amateur satellite moves west

B-002-09-09 (1)

Station logs and confirmation (QSL) cards are always kept in UTC (Universal Time Coordinated). Where is that time based?

Greenwich, England

Geneva, Switzerland

Ottawa, Canada

Newington, CT

B-002-09-10 (1)

When referring to contacts in the station log, what do the letters UTC mean?

Universal Time Coordinated (formerly Greenwich Mean Time - GMT)

Universal Time Constant

Unlisted Telephone Call

Unlimited Time Capsule

B-002-09-11 (3)

To set your station clock accurately to UTC, you could receive the most accurate time off the air from _____ ?

A non-directional beacon station

Your local television station

CHU, WWV or WWVH

Your local radio station

B-003-01-01 (1)

A low pass filter in an HF station is most effective when connected:

as close as possible to the transceiver output

as close as possible to the antenna tuner output

as close as possible to the antenna midway between the transceiver and antenna

B-003-01-02 (4)

A low pass filter in an HF station is most effective when connected:

as close as possible to the antenna

as close as possible to the antenna tuner output

as close as possible to the linear amplifier input

as close as possible to the linear amplifier output

B-003-01-03 (2)

In designing an HF station, which component would you use to reduce the effects of harmonic radiation?

Dummy load

Low pass filter

Antenna switch

SWR bridge

B-003-01-04 (1)

Which component in an HF station is the most useful for determining the effectiveness of the antenna system?

SWR bridge

Antenna switch

Linear amplifier

Dummy load

B-003-01-05 (3)

Of the components in an HF station, which component would normally be connected closest to the antenna, antenna tuner and dummy load?

Transceiver

Low pass filter

Antenna switch

SWR bridge

B-003-01-06 (1)

Of the components in an HF station, which component would be used to match impedances between the transceiver and antenna?

Antenna tuner

Antenna switch

Dummy load

SWR bridge

B-003-01-07 (4)

In an HF station, which component is temporarily connected in the tuning process?

SWR bridge

Low pass filter

Antenna tuner

Dummy load

B-003-01-08 (1)

In an HF station, the antenna tuner is usually used for matching the transceiver with:

most antennas when operating below 14 MHz

most antennas when operating above 14 MHz

mono-band Yagi type antennas

tri-band Yagi antennas

B-003-01-09 (4)

In an HF Station, the antenna tuner is commonly used:

with most antennas when operating above 14 MHz

to tune into dummy loads

to tune low pass filters

with most antennas when operating below 14 MHz

B-003-02-01 (1)

In a frequency modulation transmitter, the input to the speech amplifier is connected to the:

microphone
modulator
power amplifier
frequency multiplier

B-003-02-02 (3)

In a frequency modulation transmitter, the microphone is connected to the:

modulator
power amplifier
speech amplifier
oscillator

B-003-02-03 (1)

In a frequency modulation transmitter, the _____ is in between the speech amplifier and the oscillator.

modulator
power amplifier
microphone
frequency multiplier

B-003-02-04 (2)

In a frequency modulation transmitter, the _____ is located between the modulator and the frequency multiplier.

speech amplifier
oscillator
power amplifier
microphone

B-003-02-05 (1)

In a frequency modulation transmitter, the _____ is located between the oscillator and the power amplifier.

frequency multiplier
microphone
speech amplifier
modulator

B-003-02-06 (2)

In a frequency modulation transmitter, the _____ is located between the frequency multiplier and the antenna.

modulator
power amplifier
speech amplifier
oscillator

B-003-02-07 (3)

In a frequency modulation transmitter, the power amplifier output is connected to the:

frequency multiplier
microphone
antenna
modulator

B-003-03-01 (3)

In a frequency modulation receiver, the _____ is connected to the input of the radio frequency amplifier.

mixer
frequency discriminator
antenna
limiter

B-003-03-02 (4)

In a frequency modulation receiver, the _____ is in between the antenna and the mixer.

audio frequency amplifier
high frequency oscillator
intermediate frequency amplifier
radio frequency amplifier

B-003-03-03 (4)

In a frequency modulation receiver, the output of the high frequency oscillator is fed to the:

radio frequency amplifier
limiter
antenna
mixer

B-003-03-04 (4)

In a frequency modulation receiver, the output of the _____ is connected to the mixer.

frequency discriminator
intermediate frequency amplifier
speaker and/or headphones
high frequency oscillator

B-003-03-05 (1)

In a frequency modulation receiver, the _____ is in between the mixer and the intermediate frequency amplifier.

filter
limiter
frequency discriminator
radio frequency amplifier

B-003-03-06 (2)

In a frequency modulation receiver, the _____ is located between the filter and the limiter.

high frequency oscillator
intermediate frequency amplifier
mixer
radio frequency amplifier

B-003-03-07 (3)

In a frequency modulation receiver, the _____ is in between the intermediate frequency amplifier and the frequency discriminator.

filter
high frequency oscillator
limiter
radio frequency amplifier

B-003-03-08 (4)

In a frequency modulation receiver, the _____ is located between the limiter and the audio frequency amplifier.

intermediate frequency amplifier
speaker and/or headphones
high frequency oscillator

frequency discriminator

B-003-03-09 (4)

In a frequency modulation receiver, the _____ is located between the speaker and/or headphones and the frequency discriminator.

limiter
intermediate frequency amplifier
radio frequency amplifier
audio frequency amplifier

B-003-03-10 (3)

In a frequency modulation receiver, the _____ connects to the audio

frequency amplifier output
intermediate frequency amplifier
frequency discriminator
speaker and/or headphones
limiter

B-003-04-01 (3)

In a CW transmitter, the output from the _____ is connected to the driver/buffer.

power amplifier
telegraph key
master oscillator
power supply

B-003-04-02 (2)

In a typical CW transmitter, the _____ is the primary source of direct current.

driver/buffer
power supply
power amplifier
master oscillator

B-003-04-03 (2)

In a CW transmitter, the _____ is between the master oscillator and the power amplifier.
audio amplifier
driver/buffer
power supply
telegraph key

B-003-04-04 (3)

In a CW transmitter, the _____ controls when RF energy is applied to the antenna.
master oscillator
driver/buffer
telegraph key
power amplifier

B-003-04-05 (2)

In a CW transmitter, the _____ is in between the driver/buffer stage and the antenna.
power supply
power amplifier
telegraph key
master oscillator

B-003-04-06 (1)

In a CW transmitter, the output of the _____ is transferred to the antenna.
power amplifier
driver/buffer
power supply
master oscillator

B-003-05-01 (4)

In a single sideband and CW receiver, the antenna is connected to the _____.
product detector
high frequency oscillator
intermediate frequency amplifier
radio frequency amplifier

B-003-05-02 (4)

In a single sideband and CW receiver, the output of the _____ is connected to the mixer.
filter
intermediate frequency amplifier
audio frequency amplifier
radio frequency amplifier

B-003-05-03 (3)

In a single sideband and CW receiver, the _____ is connected to the radio frequency amplifier and the high frequency oscillator.
beat frequency oscillator
product detector
mixer
filter

B-003-05-04 (2)

In a single sideband and CW receiver, the output of the _____ is connected to the mixer.
intermediate frequency amplifier
high frequency oscillator
beat frequency oscillator
product detector

B-003-05-05 (1)

In a single sideband and CW receiver, the _____ is in between the mixer and intermediate frequency amplifier.
filter
radio frequency amplifier
beat frequency oscillator
product detector

B-003-05-06 (1)

In a single sideband and CW receiver, the _____ is in between the filter and product detector.
intermediate frequency amplifier
audio frequency amplifier
beat frequency oscillator
radio frequency amplifier

B-003-05-07 (1)

In a single sideband and CW receiver, the _____ output is connected to the audio frequency amplifier.

product detector
high frequency oscillator
beat frequency oscillator
intermediate frequency amplifier

B-003-05-08 (2)

In a single sideband and CW receiver, the output of the _____ is connected to the product detector.

mixer
beat frequency oscillator
radio frequency amplifier
audio frequency amplifier

B-003-05-09 (2)

In a single sideband and CW receiver, the _____ is connected to the output of the product detector.

intermediate frequency amplifier
audio frequency amplifier
high frequency oscillator
radio frequency amplifier

B-003-05-10 (1)

In a single sideband and CW receiver, the _____ is connected to the output of the audio frequency amplifier.

speaker and/or headphones
mixer
radio frequency amplifier
beat frequency oscillator

B-003-06-01 (1)

In a single sideband transmitter, the output of the _____ is connected to the balanced modulator.

radio frequency oscillator
variable frequency oscillator
linear amplifier
mixer

B-003-06-02 (2)

In a single sideband transmitter, the output of the _____ is connected to the filter.

microphone
balanced modulator
mixer
radio frequency oscillator

B-003-06-03 (3)

In a single sideband transmitter, the _____ is in between the balanced modulator and the mixer.

radio frequency oscillator
speech amplifier
filter
microphone

B-003-06-04 (4)

In a single sideband transmitter, the _____ is connected to the speech amplifier.

radio frequency oscillator
filter
mixer
microphone

B-003-06-05 (3)

In a single sideband transmitter, the output of the _____ is connected to the balanced modulator.

filter
variable frequency oscillator
speech amplifier
linear amplifier

B-003-06-06 (4)

In a single sideband transmitter, the output of the variable frequency oscillator is connected to the _____.

antenna
balanced modulator
linear amplifier
mixer

B-003-06-07 (1)

In a single sideband transmitter, the output of the _____ is connected to the mixer.

variable frequency oscillator
radio frequency oscillator
linear amplifier
antenna

B-003-06-08 (2)

In an single sideband transmitter, the _____ is in between the mixer and the antenna.

variable frequency oscillator
linear amplifier
balanced modulator
radio frequency oscillator

B-003-06-09 (1)

In a single sideband transmitter, the output of the linear amplifier is connected to the _____.

antenna
filter
variable frequency oscillator
speech amplifier

B-003-07-01 (4)

In a digital system, the _____ is controlled by the computer.

antenna
power supply
transceiver
input/output

B-003-07-02 (2)

In a digital system, the modem is connected to the _____.

amplifier
computer
antenna
input/output

B-003-07-03 (1)

In a digital system, the transceiver is connected to the _____.

modem
computer
scanner
input/output

B-003-07-04 (2)

In a digital system, the modem is connected to the _____.

input/output
transceiver
scanner
antenna

B-003-08-01 (2)

In a regulated power supply, the transformer connects to an external source which is referred to as _____.

regulator
input
filter
rectifier

B-003-08-02 (1)

In a regulated power supply, the _____ is between the input and the rectifier.

transformer
output
regulator
filter

B-003-08-03 (1)

In a regulated power supply, the _____ is between the transformer and the filter.

rectifier
input
output
regulator

B-003-08-04 (1)

In a regulated power supply, the output of the rectifier is connected to the _____.

filter
output
transformer
regulator

B-003-08-05 (1)

In a regulated power supply, the output of the filter connects to the _____.

regulator
transformer
rectifier
output

B-003-08-06 (1)

In a regulated power supply, the _____ is connected to the

regulator.
output
rectifier
input
transformer

B-003-09-01 (4)

In a Yagi-Uda 3 element directional antenna, the _____ is primarily for mechanical purposes.

reflector
driven element
director
boom

B-003-09-02 (3)

In a Yagi-Uda 3 element directional antenna, the _____ is the longest radiating element.

director
driven element
reflector
boom

B-003-09-03 (3)

In a Yagi-Uda 3 element directional antenna, the _____ is the shortest radiating element.

boom
reflector
director
driven element

B-003-09-04 (3)

In a Yagi-Uda 3 element directional antenna, the _____ is not the longest nor the shortest radiating element.

boom
director
driven element
reflector

B-003-10-01 (3)

Which list of emission types is in order from the narrowest bandwidth to the widest bandwidth?

CW, SSB voice, RTTY, FM voice
CW, FM voice, RTTY, SSB voice
CW, RTTY, SSB voice, FM voice
RTTY, CW, SSB voice, FM voice

B-003-10-02 (1)

The figure in a receiver's specifications which indicates its sensitivity is the:
signal plus noise to noise ratio
audio output in watts
bandwidth of the IF in kilohertz
number of RF amplifiers

B-003-10-03 (3)

If two receivers of different sensitivity are compared, the less sensitive receiver will produce:

a steady oscillator drift
more than one signal
less signal or more noise
more signal or less noise

B-003-10-04 (4)

Which of the following modes of transmission is usually detected with a product detector?

Double sideband full carrier

Frequency modulation

Pulse modulation

Single sideband suppressed carrier

B-003-10-05 (3)

A receiver designed for SSB reception must have a BFO (beat frequency oscillator) because:

it beats with the received carrier to produce the other sideband

it reduces the passband of the IF stages the suppressed carrier must be replaced for detection

it phases out the unwanted sideband signal

B-003-10-06 (3)

A receiver receives an incoming signal of 3.54 MHz, and the local oscillator produces a signal of 3.995 MHz. To which frequency should the IF be tuned?

7.435 MHz

3.995 MHz

455 kHz

3.54 MHz

B-003-10-07 (1)

What kind of filter would you use to attenuate an interfering carrier signal while receiving an SSB transmission?

A notch filter

A band pass filter

An all pass filter

A pi-network filter

B-003-10-08 (4)

The three main parameters against which the quality of a receiver is measured are: selectivity, stability and frequency range sensitivity, stability and cross-modulation

sensitivity, selectivity and image rejection

sensitivity, selectivity and stability

B-003-10-09 (2)

A communications receiver has four filters installed in it, one at 250 Hz, one at 500 Hz, one at 2.4 kHz, and one at 6 kHz. If you were listening to single sideband, which filter would you utilize?

250 Hz

2.4 kHz

6 kHz

500 Hz

B-003-10-10 (4)

A communications receiver has four filters installed in it, one at 250 Hz, one at 500 Hz, one at 2.4 kHz and one at 6 kHz. You are copying a CW transmission and there is a great deal of interference. Which one of the filters would you choose?

500 Hz

2.4 kHz

6 kHz

250 Hz

B-003-10-11 (3)

Selectivity can be placed in the audio stages of a receiver by the utilization of RC active or passive audio filters. If you were to copy CW, which of the following bandpasses would you choose?

2100 - 2300 Hz

300 - 2700 Hz

750 - 850 Hz

100 - 1100 Hz

B-003-11-01 (2)

What does chirp mean?

A high-pitched tone which is received along with a CW signal

A small change in a transmitter's frequency each time it is keyed

A slow change in transmitter frequency as the circuit warms up

An overload in a receiver's audio circuit whenever CW is received

B-003-11-02 (2)

What can be done to keep a CW transmitter from chirping?

Add a key-click filter

Keep the power supply voltages very steady

Keep the power supply current very steady

B-003-11-03 (2)

What circuit has a variable-frequency oscillator connected to a driver and a power amplifier?

A crystal-controlled transmitter

A VFO-controlled transmitter

A single-sideband transmitter

A packet-radio transmitter

B-003-11-04 (2)

What type of modulation system changes the amplitude of an RF wave for the purpose of conveying information?

Phase modulation

Amplitude modulation

Amplitude-rectification modulation

Frequency modulation

B-003-11-05 (3)

In what emission type does the instantaneous amplitude (envelope) of the RF signal vary in accordance with the modulating audio?

Frequency modulation

Pulse modulation

Amplitude modulation

Frequency shift keying

B-003-11-06 (3)

Morse code is usually transmitted by radio as:

a series of key-clicks

a continuous carrier

an interrupted carrier

a voice-modulated carrier

B-003-11-07 (3)

A mismatched antenna or feedline may present an incorrect load to the transmitter. The result may be:

loss of modulation in the transmitted signal

the driver stage will not deliver power to the final

excessive heat produced in the final transmitter stage

the output tank circuit breaks down

B-003-11-08 (3)

One result of a slight mismatch between the power amplifier of a transmitter and the antenna would be:

smaller DC current drain

lower modulation percentage

reduced antenna radiation

radiated key-clicks

B-003-11-09 (3)

An RF oscillator should be electrically and mechanically stable. This is to ensure that the oscillator does not:

become over modulated

generate key-clicks

drift in frequency

cause undue distortion

B-003-11-10 (1)

The input power to the final stage of your transmitter is 200 watts and the output is 125 watts. What has happened to the remaining power?

It has been dissipated as heat loss

It has been used to provide greater efficiency

It has been used to provide negative feedback

It has been used to provide positive feedback

B-003-11-11 (2)

The difference between DC input power and RF output power of a transmitter RF amplifier:

is lost in the feed line

appears as heat dissipation

is due to oscillating

radiates from the antenna

B-003-12-01 (3)

What may happen if an SSB transmitter is operated with the microphone gain set too high?

It may cause interference to other stations operating on a higher frequency band

It may cause atmospheric interference in the air around the antenna

It may cause splatter interference to other stations operating near its frequency

It may cause digital interference to computer equipment

B-003-12-02 (4)

What may happen if an SSB transmitter is operated with too much speech processing?

It may cause digital interference to computer equipment

It may cause atmospheric interference in the air around the antenna

It may cause interference to other stations operating on a higher frequency band

It may cause splatter interference to other stations operating near its frequency

B-003-12-03 (2)

What is the term for the average power supplied to an antenna transmission line during one RF cycle, at the crest of the modulation envelope?

Peak output power

Peak envelope power

Average radio-frequency power

Peak transmitter power

B-003-12-04 (4)

What is the usual bandwidth of a single-sideband amateur signal?

1 kHz

2 kHz

Between 3 and 6 kHz

Between 2 and 3 kHz

B-003-12-05 (2)

In a typical single-sideband phone transmitter, what circuit processes signals from the balanced modulator and sends signals to the mixer?

IF amplifier

Filter

RF amplifier

Carrier oscillator

B-003-12-06 (1)

What is one advantage of carrier suppression in a double-sideband phone transmission?

More power can be put into the sidebands

Only half the bandwidth is required for the same information content

Greater modulation percentage is obtainable with lower distortion

Simpler equipment can be used to receive a double-sideband suppressed-carrier signal

B-003-12-07 (4)

What happens to the signal of an overmodulated single-sideband or double-sideband phone transmitter?

It becomes louder with no other effects

It occupies less bandwidth with poor high-frequency response

It has higher fidelity and improved signal-to-noise ratio

It becomes distorted and occupies more bandwidth

B-003-12-08 (1)

How should the microphone gain control be adjusted on a single-sideband phone transmitter?

For slight movement of the ALC meter on modulation peaks

For full deflection of the ALC meter on modulation peaks

For 100% frequency deviation on modulation peaks

For a dip in plate current

B-003-12-09 (4)

The purpose of a balanced modulator in an SSB transmitter is to:

make sure that the carrier and both sidebands are 180° out of phase

ensure that the percentage of modulation is kept constant

make sure that the carrier and both sidebands are in phase
suppress the carrier and pass on the two sidebands

B-003-12-10 (2)

In a SSB transmission, the carrier is: transmitted with one sideband

reinserted at the receiver

inserted at the transmitter

of no use at the receiver

B-003-12-11 (2)

The automatic level control (ALC) in a SSB transmitter :

eliminates the transmitter distortion

controls the peak audio input so that the final amplifier is not overdriven

increases the occupied bandwidth

reduces the system noise

B-003-13-01 (4)

What may happen if an FM transmitter is operated with the microphone gain or deviation control set too high?

It may cause digital interference to computer equipment

It may cause atmospheric interference in the air around the antenna

It may cause interference to other stations operating on a higher frequency band

It may cause interference to other stations operating near its frequency

B-003-13-02 (1)

What may your FM hand-held or mobile transceiver do if you shout into its microphone?

It may cause interference to other stations operating near its frequency
It may cause digital interference to computer equipment

It may cause atmospheric interference in the air around the antenna

It may cause interference to other stations operating on a higher frequency band

B-003-13-03 (4)

What can you do if you are told your FM hand-held or mobile transceiver is overdeviating?

Talk louder into the microphone
Let the transceiver cool off
Change to a higher power level
Talk farther away from the microphone

B-003-13-04 (3)

What kind of emission would your FM transmitter produce if its microphone failed to work?

A frequency-modulated carrier
An amplitude-modulated carrier
An unmodulated carrier
A phase-modulated carrier

B-003-13-05 (1)

Why is FM voice best for local VHF/UHF radio communications?
It has high-fidelity audio which can be understood even when the signal is somewhat weak
The carrier is not detectable
It is more resistant to distortion caused by reflected signals
Its RF carrier stays on frequency better than the AM modes

B-003-13-06 (1)

What is the usual bandwidth of a frequency-modulated amateur signal?

Between 10 and 20 kHz
Less than 5 kHz
Between 5 and 10 kHz
Greater than 20 kHz

B-003-13-07 (1)

What is the result of overdeviation in an FM transmitter?

Out-of-channel emissions
Increased transmitter power
Increased transmitter range
Poor carrier suppression

B-003-13-08 (4)

What emission is produced by a reactance modulator connected to an RF power amplifier?

Multiplex modulation
Amplitude modulation
Pulse modulation
Phase modulation

B-003-13-09 (4)

Why isn't frequency modulated (FM) phone used below 29.5 MHz?

The transmitter efficiency for this mode is low
Harmonics could not be attenuated to practical levels
The frequency stability would not be adequate
The bandwidth would exceed limits in the Regulations

B-003-13-10 (1)

You are transmitting FM on the 2 metre band. Several stations advise you that your transmission is distorted. A quick check with a frequency counter tells you that the transmitter is on the proper frequency. Which of the following is the most probable cause of the distortion?

The frequency deviation of your transmitter is set too high

The power supply output voltage is low

The repeater is reversing your sidebands

The frequency counter is giving an incorrect reading and you are indeed off frequency

B-003-13-11 (4)

FM receivers perform in an unusual manner when two or more stations are present. The loudest signal, even though it is only two or three times as loud as the other signals, will be the only transmission demodulated. This is called:

attach effect

interference effect

surrender effect

capture effect

B-003-14-01 (1)

What do many amateurs use to help form good Morse code characters?

An electronic keyer

A key-operated on/off switch

A notch filter

A DTMF keypad

B-003-14-02 (1)

Where would you connect a microphone for voice operation?

To a transceiver

To a power supply

To an antenna switch

To an antenna

B-003-14-03 (3)

What would you connect to a transceiver for voice operation?

A receiver audio filter

A terminal-voice controller

A microphone

A splatter filter

B-003-14-04 (3)

Why might a dummy antenna get warm when in use?

Because it absorbs static electricity

Because it stores radio waves

Because it changes RF energy into heat

Because it stores electric current

B-003-14-05 (4)

What is the circuit called which causes a transmitter to automatically transmit when an operator speaks into its microphone?

VXO

VCO

VFO

VOX

B-003-14-06 (1)

What is the reason for using a properly adjusted speech processor with a single-sideband phone transmitter?

It improves signal intelligibility at the receiver

It reduces average transmitter power requirements

It reduces unwanted noise pickup from the microphone

It improves voice frequency fidelity

B-003-14-07 (1)

If a single-sideband phone transmitter is 100% modulated, what will a speech processor do to the transmitter's power?

It will add nothing to the output PEP

It will increase the output PEP

It will decrease the peak power output

It will decrease the average power output

B-003-14-08 (1)

When switching from receive to transmit:
the receiver should be muted
the transmit oscillator should be turned off
the receiving antenna should be connected
the power supply should be off

B-003-14-09 (2)

A switching system to enable the use of one antenna for a transmitter and receiver should also:
ground the antenna on receive
disable the unit not being used
switch between meters
disconnect the antenna tuner

B-003-14-10 (1)

An antenna changeover switch in a transmitter-receiver combination is necessary:
so that one antenna can be used for transmitter and receiver
to change antennas for operation on other frequencies
to prevent RF currents entering the receiver circuits
to allow more than one transmitter to be used

B-003-14-11 (3)

Which of the following components could be used as a dynamic microphone?
crystal earpiece
resistor
loudspeaker
capacitor

B-003-15-01 (4)

What does "connected" mean in a packet-radio link?
A telephone link is working between two stations
A message has reached an amateur station for local delivery
A transmitting and receiving station are using a digipeater, so no other contacts can take place until they are finished
A transmitting station is sending data to only one receiving station; it replies that the data is being received correctly

B-003-15-02 (2)

What does "monitoring" mean on a packet-radio frequency?
A member of the Amateur Auxiliary is copying all messages
A receiving station is displaying messages that may not be sent to it, and is not replying to any message
A receiving station is displaying all messages sent to it, and replying that the messages are being received correctly
Industry Canada is monitoring all messages

B-003-15-03 (3)

What is a digipeater?
A repeater built using only digital electronics parts
A repeater that changes audio signals to digital data
A packet-radio station that retransmits only data that is marked to be retransmitted
A packet-radio station that retransmits any data that it receives

B-003-15-04 (1)

What does "network" mean in packet radio?

A way of connecting packet-radio stations so data can be sent over long distances

A way of connecting terminal-node controllers by telephone so data can be sent over long distances

The connections on terminal-node controllers

The programming in a terminal-node controller that rejects other callers if a station is already connected

B-003-15-05 (4)

In packet-radio operation, what equipment connects to a terminal-node controller?

A transceiver and a modem

A DTMF keypad, a monitor and a transceiver

A DTMF microphone, a monitor and a transceiver

A transceiver and a terminal or computer system

B-003-15-06 (1)

How would you modulate a 2 meter FM transceiver to produce packet-radio emissions?

Connect a terminal-node controller to the transceiver's microphone input

Connect a terminal-node controller to interrupt the transceiver's carrier wave

Connect a keyboard to the transceiver's microphone input

Connect a DTMF key pad to the transceiver's microphone input

B-003-15-07 (3)

When selecting a RTTY transmitting frequency, what minimum frequency separation from a contact in progress should you allow (center to center) to minimize interference?

Approximately 6 kHz

Approximately 3 kHz

250 to 500 Hz

60 Hz

B-003-15-08 (3)

Digital transmissions use signals called _____ to transmit the states 1 and 0

packet and AMTOR

baudot and ASCII

mark and space

dot and dash

B-003-15-09 (2)

Which of the following terms does not apply to packet?

ASCII

Baudot

Terminal-Node Controller (TNC)

AX.25

B-003-15-10 (3)

When using AMTOR transmissions, there are two modes that may be utilized. Mode A uses Automatic Repeat Request (ARQ) protocol and is normally used: at all times. Mode B is for test purposes only

only when communications have been completed

for communications after contact has been established

when making a general call

B-003-15-11 (4)

What is the most common data rate used for VHF packet communications?

300 baud

9600 baud

2400 baud

1200 baud

B-003-16-01 (3)

How much voltage does a standard automobile battery usually supply ?

About 240 volts

About 120 volts

About 12 volts

About 9 volts

B-003-16-02 (4)

Which component has a positive and a negative side?

A potentiometer

A fuse

A resistor

A battery

B-003-16-03 (3)

A cell, that can be repeatedly recharged by supplying it with electrical energy, is known as a:

low leakage cell

memory cell

storage cell

primary cell

B-003-16-04 (2)

Which of the following is a source of EMF?

germanium diode

lead acid battery

P channel FET

carbon resistor

B-003-16-05 (2)

An important difference between a conventional flashlight battery and a lead acid battery is that only the lead acid battery:

has two terminals

can be repeatedly recharged

can be completely discharged

contains an electrolyte

B-003-16-06 (2)

A dry cell has a nominal voltage of 1.5 volt. When supplying a great deal of current, the voltage may drop to 1.2 volt.

This is due to the cell's:

electrolyte becoming dry

internal resistance

current capacity

voltage capacity

B-003-16-07 (1)

The most common primary cell in use today is the carbon-zinc or flashlight cell. This cell can be recharged:

never

twice

many times

once

B-003-16-08 (4)

All storage batteries have discharge limits, and nickel-cadmium, the type most used in hand-held portables, should not be discharged to less than:

0.5 volt per cell

1.5 volt per cell

0.2 volt per cell

1.0 volt per cell

B-003-16-09 (1)

To increase the current capacity of a cell, several cells should be connected in:

parallel

series

parallel resonant

series resonant

B-003-16-10 (4)

To increase the voltage output, several cells are connected in:

parallel

series-parallel

resonance

series

B-003-16-11 (1)

A nickel-cadmium battery should never be:

short-circuited

recharged

left disconnected

left overnight at room temperature

B-003-17-01 (1)

If your mobile transceiver works in your car but not in your home, what should you check first?

The power supply

The speaker

The microphone

The SWR meter

B-003-17-02 (2)

What device converts household current to 12 VDC?

A low pass filter

A power supply

An RS-232 interface

A catalytic converter

B-003-17-03 (3)

Which of these usually needs a heavy-duty power supply?

An antenna switch

A receiver

A transceiver

An SWR meter

B-003-17-04 (1)

What may cause a buzzing or hum in the signal of an AC-powered transmitter?

A bad filter capacitor in the transmitter's power supply

Using an antenna which is the wrong length

Energy from another transmitter

Bad design of the transmitter's RF power output circuit

B-003-17-05 (4)

A power supply is to supply DC at 12 volts at 5 amperes. The power transformer should be rated higher than:

17 watts

2.4 watts

6 watts

60 watts

B-003-17-06 (2)

The diode is an important part of a simple power supply. It converts AC to DC, since it:

has a high resistance to AC but not to DC

allows electrons to flow in only one direction from cathode to anode

has a high resistance to DC but not to AC

allows electrons to flow in only one direction from anode to cathode

B-003-17-07 (3)

To convert AC to pulsating DC, you could use a:

transformer

capacitor

diode

resistor

B-003-17-08 (1)

Power-line voltages have been made standard over the years and the voltages generally supplied to homes are approximately:

120 and 240 volts

110 and 220 volts

100 and 200 volts

130 and 260 volts

B-003-17-09 (4)

So-called "transformerless" power supplies are used in some applications (notably tube-type radios and TV receivers). When working on such equipment, one should be very careful because:

DC circuits are negative relative to the chassis

chassis connections are grounded by the centre pin of the power source's plug
the load across the power supply is variable

one side of the line cord is connected to the chassis

B-003-17-10 (2)

If household voltages are consistently high or low at your location, this can be corrected by the use of:

a full-wave bridge rectifier

an autotransformer

a variable voltmeter

a proper load resistance

B-003-17-11 (1)

You have a very loud low- frequency hum appearing on your transmission. In what part of the transmitter would you first look for the trouble?

the power supply

the variable-frequency oscillator

the driver circuit

the power amplifier circuit

B-003-18-01 (1)

How could you best keep unauthorized persons from using your amateur station at home?

Use a key-operated on/off switch in the main power line

Use a carrier-operated relay in the main power line

Put a "Danger - High Voltage" sign in the station

Put fuses in the main power line

B-003-18-02 (3)

How could you best keep unauthorized persons from using a mobile amateur station in your car?

Tune the radio to an unused frequency when you are done using it

Turn the radio off when you are not using it

Disconnect the microphone when you are not using it

Put a "Do not touch" sign on the radio

B-003-18-03 (4)

Why would you use a key- operated on/off switch in the main power line of your station?

For safety, in case the main fuses fail

To keep the power company from turning off your electricity during an emergency

For safety, to turn off the station in the event of an emergency

To keep unauthorized persons from using your station

B-003-18-04 (1)

Why would there be a switch in a high-voltage power supply to turn off the power if its cabinet is opened?

To keep anyone opening the cabinet from getting shocked by dangerous high voltages

To keep dangerous RF radiation from leaking out through an open cabinet

To keep dangerous RF radiation from coming in through an open cabinet

To turn the power supply off when it is not being used

B-003-18-05 (4)

How little electrical current flowing through the human body can be fatal?

Approximately 10 amperes

More than 20 amperes

Current flow through the human body is never fatal

As little as 1/10 of an ampere

B-003-18-06 (1)

Which body organ can be fatally affected by a very small amount of electrical current?

The heart

The brain

The liver

The lungs

B-003-18-07 (4)

What is the minimum voltage which is usually dangerous to humans?

100 volts

1000 volts

2000 volts

30 volts

B-003-18-08 (3)

What should you do if you discover someone who is being burned by high voltage?

Wait for a few minutes to see if the person can get away from the high voltage on their own, then try to help

Immediately drag the person away from the high voltage

Turn off the power, call for emergency help and give CPR if needed

Run from the area so you won't be burned too

B-003-18-09 (1)

What is the safest method to remove an unconscious person from contact with a high voltage source?

Turn off the high voltage switch before removing the person from contact with the source

Wrap the person in a blanket and pull him to a safe area

Call an electrician

Remove the person by pulling an arm or a leg

B-003-18-10 (1)

Before checking a fault in a mains operated power supply unit, it would be safest to FIRST:

turn off the power and remove power plug

short out leads of filter capacitor

check action of capacitor bleeder resistance

remove and check fuse from power supply

B-003-18-11 (1)

Fault finding in a power supply of an amateur transmitter while the supply is operating is not a recommended technique because of the risk of:

electric shock

damaging the transmitter

overmodulation

blowing the fuse

B-003-19-01 (2)

For best protection from electrical shock, what should be grounded in an amateur station?

The antenna feed line

All station equipment

The AC power line

The power supply primary

B-003-19-02 (1)

If a separate ground system is not possible for your amateur station, an alternative indoor grounding point could be:

- a metallic cold water pipe
- a plastic cold water pipe
- a window screen
- a metallic natural gas pipe

B-003-19-03 (1)

To protect you against electrical shock, the chassis of each piece of your station equipment should be connected to:

- a good ground connection
- a dummy load
- insulated shock mounts
- the antenna

B-003-19-04 (4)

Which of these materials is best for a ground rod driven into the earth?

- Hard plastic
- Iron or steel
- Fiberglass
- Copper-clad steel

B-003-19-06 (3)

Where should the green wire in a three-wire AC line cord be connected in a power supply?

- To the white wire
- To the "hot" side of the power switch
- To the chassis
- To the fuse

B-003-19-07 (3)

If your third-floor amateur station has a ground wire running 10.05 metres (33 feet) down to a ground rod, why might you get an RF burn if you touch the front panel of your HF transceiver?

Because of a bad antenna connection, allowing the RF energy to take an easier path out of the transceiver through you

Because the transceiver's heat-sensing circuit is not working to start the cooling fan

Because the ground wire is a resonant length on several HF bands and acts more like an antenna than an RF ground connection

Because the ground rod is not making good contact with moist earth

B-003-19-08 (3)

What is one good way to avoid stray RF energy in your amateur station?

Make a couple of loops in the ground wire where it connects to your station
Drive the ground rod at least 420 cm (14 feet) into the ground

Keep the station's ground wire as short as possible

Use a beryllium ground wire for best conductivity

B-003-19-09 (3)

Which statement about station grounding is true?

A ground loop is an effective way to ground station equipment

If the chassis of all station equipment is connected with a good conductor, there is no need to tie them to an earth ground
RF hot spots can occur in a station located above the ground floor if the equipment is grounded by a long ground wire

The chassis of each piece of station equipment should be tied together with high-impedance conductors

B-003-19-10 (4)

On mains operated power supplies, the ground wire should be connected to the metal chassis of the power supply. This ensures, in case there is a fault in the power supply, that the chassis: does not become conductive to prevent electric shock becomes conductive to prevent electric shock develops a high voltage compared to the ground does not develop a high voltage with respect to the ground

B-003-19-11 (2)

The purpose of using a three- wire power cord and plug on amateur radio equipment is to: prevent the plug from being reversed in the wall outlet prevent the chassis from becoming live in case of an internal short to the chassis prevent short circuits make it inconvenient to use

B-003-20-01 (2)

Why should you ground all antenna and rotator cables when your amateur station is not in use?
To lock the antenna system in one. position
To protect the station and building from lightning damage
To avoid radio frequency interference
To make sure everything will stay in place

B-003-20-02 (4)

How can an antenna system be protected from lightning damage?
Install a balun at the antenna feed point
Install an RF choke in the antenna feed line
Install a fuse in the antenna feed line

Ground all antennas when they are not in use

B-003-20-03 (1)

How can amateur station equipment best be protected from lightning damage?
Disconnect all equipment from the power lines and antenna cables
Use heavy insulation on the wiring
Never turn off the equipment
Disconnect the ground system from all radios

B-003-20-04 (2)

What equipment should be worn for working on an antenna tower?
A reflective vest of approved color
Approved equipment in accordance with provincial safety standards concerning climbing
A flashing red, yellow or white light
A grounding chain

B-003-20-05 (3)

Why should you wear a safety belt if you are working on an antenna tower?
To safely bring any tools you might use up and down the tower
To keep the tower from becoming unbalanced while you are working
To prevent you from accidentally falling
To safely hold your tools so they don't fall and injure someone on the ground

B-003-20-06 (3)

For safety, how high should you place a horizontal wire antenna?
Above high-voltage electrical lines
Just high enough so you can easily reach it for adjustments or repairs
High enough so that no one can touch any part of it from the ground
As close to the ground as possible

B-003-20-07 (4)

Why should you wear a hard hat if you are on the ground helping someone work on an antenna tower?

So you won't be hurt if the tower should accidentally fall

To keep RF energy away from your head during antenna testing

So someone passing by will know that work is being done on the tower and will stay away

To protect your head from something dropped from the tower

B-003-20-08 (3)

Why should your outside antennas be high enough so that no one can touch them while you are transmitting?

Touching the antenna might reflect the signal back to the transmitter and cause damage

Touching the antenna might radiate harmonics

Touching the antenna might cause RF burns

Touching the antenna might cause television interference

B-003-20-09 (2)

Why should you make sure that no one can touch an open-wire feed line while you are transmitting with it?

Because contact might break the feed line

Because high-voltage radio energy might burn the person

Because contact might cause spurious emissions

Because contact might cause a short circuit and damage the transmitter

B-003-20-10 (1)

What safety precautions should you take before beginning repairs on an antenna?

Be sure to turn off the transmitter and disconnect the feed line

Be sure you and the antenna structure are grounded

Inform your neighbors so they are aware of your intentions

Turn off the main power switch in your house

B-003-20-11 (3)

What precaution should you take when installing a ground-mounted antenna?

It should be painted so people or animals do not accidentally run into it

It should not be installed in a wet area

It should be installed so no one can come in contact with it

It should not be installed higher than you can reach

B-003-21-01 (1)

What should you do for safety when operating at 1270 MHz?

Keep antenna away from your eyes when RF is applied

Make sure that an RF leakage filter is installed at the antenna feed point

Make sure the standing wave ratio is low before you conduct a test

Never use a horizontally polarized antenna

B-003-21-02 (2)

What should you do for safety if you put up a UHF transmitting antenna?

Make sure the antenna is near the ground to keep its RF energy pointing in the correct direction

Make sure the antenna will be in a place where no one can get near it when you are transmitting

Make sure you connect an RF leakage filter at the antenna feed point

Make sure that RF field screens are in place

B-003-21-03 (3)

What should you do for safety, before removing the shielding on a UHF power amplifier?

Make sure that RF leakage filters are connected

Make sure the antenna feed line is properly grounded

Make sure the amplifier cannot accidentally be turned on

Make sure all RF screens are in place at the antenna feed line

B-003-21-04 (2)

Why should you make sure the antenna of a hand-held transceiver is not close to your head when transmitting?

To use your body to reflect the signal in one direction

To reduce your exposure to the radio-frequency energy

To keep static charges from building up

To help the antenna radiate energy equally in all directions

B-003-21-05 (4)

How should you position the antenna of a hand-held transceiver while you are transmitting?

Pointed towards the station you are contacting

Pointed away from the station you are contacting

Pointed down to bounce the signal off the ground

Away from your head and away from others

B-003-21-06 (4)

How can exposure to a large amount of RF energy affect body tissue?

It causes radiation poisoning

It paralyzes the tissue

It produces genetic changes in the tissue

It heats the tissue

B-003-21-07 (2)

Which body organ is the most likely to be damaged from the heating effects of RF radiation?

Heart

Eyes

Liver

Hands

B-003-21-08 (4)

Depending on the wavelength of the signal, the energy density of the RF field, and other factors, in what way can RF energy affect body tissue?

It causes radiation poisoning

It causes blood flow to stop

It produces genetic changes in the tissue

It heats the tissue

B-003-21-09 (3)

If you operate your amateur station with indoor antennas, what precautions should you take when you install them?

Position the antennas parallel to electrical power wires to take advantage of parasitic effects

Position the antennas along the edge of a wall where it meets the floor or ceiling to reduce parasitic radiation

Locate the antennas as far away as possible from living spaces that will be occupied while you are operating

Locate the antennas close to your operating position to minimize feed-line length

B-003-21-10 (1)

Why should directional high- gain antennas be mounted higher than nearby structures?

So they will not direct RF energy toward people in nearby structures

So they will be dried by the wind after a heavy rain storm

So they will not damage nearby structures with RF energy

So they will receive more sky waves and fewer ground waves

B-003-21-11 (1)

For best RF safety, where should the ends and center of a dipole antenna be located?

As high as possible to prevent people from coming in contact with the antenna

Near or over moist ground so RF energy will be radiated away from the ground

As close to the transmitter as possible so RF energy will be concentrated near the transmitter

Close to the ground so simple adjustments can be easily made without climbing a ladder

B-004-01-01 (1)

A circuit designed to increase the level of its input signal is called:

an amplifier

a modulator

an oscillator

a receiver

B-004-01-02 (1)

If an amplifier becomes non- linear, the output signal would:

become distorted

be saturated

cause oscillations

overload the power supply

B-004-01-03 (3)

To increase the level of very weak radio signals from an antenna, you would use:

an RF oscillator

an audio oscillator

an RF amplifier

an audio amplifier

B-004-01-04 (3)

To increase the level of very weak signals from a microphone you would use:

an RF oscillator

an RF amplifier

an audio amplifier

an audio oscillator

B-004-01-05 (4)

The range of frequencies to be amplified by a speech amplifier is typically:

3 to 300 Hz

300 to 1000 Hz

40 to 40 000 Hz

300 to 3400 Hz

B-004-01-06 (2)

Which of the following IS NOT amplified by an amplifier?

current

resistance

power

voltage

B-004-01-07 (4)

The increase in signal level by an amplifier is called:

attenuation

amplitude

modulation

gain

B-004-01-08 (4)

A device with gain has the property of:
attenuation
oscillation
modulation
amplification

B-004-01-09 (4)

A device labelled "Gain = 10 dB" is likely to be an:
attenuator
oscillator
audio fader
amplifier

B-004-01-10 (2)

Amplifiers can amplify:
current, power, or inductance
voltage, current, or power
voltage, power, or inductance
voltage, current, or inductance

B-004-01-11 (4)

Which of the following is not a property of an amplifier?
gain
linearity
distortion
loss

B-004-02-01 (2)

Zener diodes are used as:
current regulators
voltage regulators
RF detectors
AF detectors

B-004-02-02 (4)

One important application for diodes is recovering information from transmitted signals. This is referred to as:
regeneration
ionization
biasing
demodulation

B-004-02-03 (2)

The primary purpose of a Zener diode is to:
provide a voltage phase shift
regulate or maintain a constant voltage
to boost the power supply voltage
provide a path through which current can flow

B-004-02-04 (2)

The action of changing alternating current to direct current is called:
amplification
rectification
transformation
modulation

B-004-02-05 (2)

The electrodes of a semi-conductor diode are known as:
gate and source
anode and cathode
collector and base
cathode and drain

B-004-02-06 (3)

If alternating current is applied to the anode of a diode, what would you expect to see at the cathode?
No signal
Steady direct current
Pulsating direct current
Pulsating alternating current

B-004-02-07 (4)

In a semi-conductor diode, electrons flow from:
anode to cathode
cathode to grid
grid to anode
cathode to anode

B-004-02-08 (1)

What semi-conductor device glows red, yellow, or green, depending upon its chemical composition?

A light-emitting diode

A fluorescent bulb

A neon bulb

A vacuum diode

B-004-02-09 (4)

Voltage regulation is the principal application of the:

junction diode

light-emitting diode

vacuum diode

Zener diode

B-004-02-10 (2)

In order for a diode to conduct, it must be:

close coupled

forward-biased

enhanced

reverse-biased

B-004-03-01 (2)

Which component can amplify a small signal using low voltages?

A variable resistor

An electrolytic capacitor

A multiple-cell battery

A PNP transistor

B-004-03-02 (3)

The basic semi-conductor amplifying device is the:

tube

P-N junction

transistor

diode

B-004-03-03 (2)

The three leads from a PNP transistor are named:

drain, base and source

collector, emitter and base

collector, source and drain

gate, source and drain

B-004-03-04 (4)

If a low level signal is placed at the input to a transistor, a higher level of signal is produced at the output lead. This effect is known as:

detection

modulation

rectification

amplification

B-004-03-05 (2)

Bipolar transistors usually have:

2 leads

3 leads

1 lead

4 leads

B-004-03-06 (1)

A semi-conductor is described as a "general purpose audio NPN device".

This would be:

a bipolar transistor

a silicon diode

a triode

an audio detector

B-004-03-07 (2)

The two basic types of bipolar transistors are:

diode and triode types

NPN and PNP types

varicap and zener types

P and N channel types

B-004-03-08 (1)

A transistor can be destroyed in a circuit by:

excessive heat

excessive light

saturation

cut-off

B-004-03-09 (2)

In a bipolar transistor, the _____ compares closest to the control grid of a triode vacuum tube.
emitter
base
source
collector

B-004-03-10 (3)

In a bipolar transistor, the _____ compares closest to the plate of a triode vacuum tube.
gate
emitter
collector
base

B-004-03-11 (4)

In a bipolar transistor, the _____ compares closest to the cathode of a triode vacuum tube.
collector
base
drain
emitter

B-004-04-01 (4)

The two basic types of field effect transistors (FET) are:
NPN and PNP
germanium and silicon
inductive and capacitive
N and P channel

B-004-04-02 (2)

A semi-conductor having its leads labeled gate, drain, and source is best described as a:
gated transistor
field-effect transistor
bipolar transistor
silicon diode

B-004-04-03 (1)

In a field effect transistor, the _____ is the terminal that controls the conductance of the channel.
gate
drain
source
collector

B-004-04-04 (1)

In a field effect transistor, the _____ is the terminal where the charge carriers enter the channel.
source
gate
drain
emitter

B-004-04-05 (3)

In a field effect transistor, the _____ is the terminal where the charge carriers leave the channel.
collector
source
drain
gate

B-004-04-06 (3)

Which semi-conductor device has characteristics most similar to a triode vacuum tube?
Junction diode
Zener diode
Field effect transistor
Bipolar transistor

B-004-04-07 (1)

The control element in the field effect transistor is the:
gate
source
drain
base

B-004-04-08 (1)

If you wish to reduce the current flowing in a field effect transistor, you could:

- increase the reverse bias voltage
- decrease the reverse bias voltage
- increase the forward bias voltage
- increase the forward bias gain

B-004-04-09 (2)

The source of a field effect transistor corresponds to the _____ of a bipolar transistor.

- base
- emitter
- drain
- collector

B-004-04-10 (2)

The drain of a field effect transistor corresponds to the _____ of a bipolar transistor.

- base
- collector
- source
- emitter

B-004-04-11 (4)

Which two elements in a field effect transistor exhibit fairly similar characteristics?

- Source and gate
- Gate and drain
- Source and base
- Source and drain

B-004-05-01 (2)

What is one reason a triode vacuum tube might be used instead of a transistor in a circuit?

- It uses less current
- It may be able to handle higher power
- It is much smaller
- It uses lower voltages

B-004-05-02 (1)

Which component can amplify a small signal but must use high voltages?

- A vacuum tube
- A transistor
- An electrolytic capacitor
- A multiple-cell battery

B-004-05-03 (2)

A feature common to tubes and transistors is that both:
have electrons drifting through a vacuum
can amplify signals
convert electrical energy to radio waves
use heat to cause electron movement

B-004-05-04 (2)

In a vacuum tube, the electrode that is operated with the highest positive potential is the _____.

- filament (heater)
- plate
- cathode
- grid

B-004-05-05 (2)

In a vacuum tube, the electrode that is usually a cylinder of wire mesh is the _____.

- filament (heater)
- grid
- cathode
- plate

B-004-05-06 (4)

In a vacuum tube, the element that is furthest away from the plate is the _____.

- grid
- emitter
- cathode
- filament (heater)

B-004-05-07 (1)

In a vacuum tube, the electrode that emits electrons is the _____.

cathode
grid
collector
plate

B-004-05-08 (2)

What is inside the envelope of a triode tube?

argon
a vacuum
air
neon

B-004-05-09 (4)

How many grids are there in a triode vacuum tube?

two
three
three plus a filament
one

B-004-05-10 (2)

If you do not wish to have current flowing in the grid circuit of a vacuum tube, the grid should be:
positive with respect to the anode
negative with respect to the cathode
positive with respect to both cathode and anode
positive with respect to the cathode

B-004-05-11 (2)

The negative DC control voltage applied to the control grid of a vacuum tube is called:

suppression voltage
bias voltage
repulsion voltage
excitation voltage

B-004-06-01 (2)

How do you find a resistor's tolerance rating?

By using Thevenin's theorem for resistors

By reading the resistor's color code

By reading its Baudot code

By using a voltmeter

B-004-06-02 (3)

What do the first three-color bands on a resistor indicate?

The resistance material
The power rating in watts
The value of the resistor in ohms
The resistance tolerance in percent

B-004-06-03 (4)

What does the fourth color band on a resistor mean?

The value of the resistor in ohms
The power rating in watts
The resistance material
The resistance tolerance in percent

B-004-06-04 (1)

What are the possible values of a 100 ohm resistor with a 10% tolerance?

90 to 110 ohms
90 to 100 ohms
10 to 100 ohms
80 to 120 ohms

B-004-06-05 (1)

How do you find a resistor's value?

By using the resistor's color code
By using a voltmeter
By using Thevenin's theorem for resistors
By using the Baudot code

B-004-06-06 (4)

Which tolerance rating would a high-quality resistor have?

5%
10%
20%
0.1%

B-004-06-07 (1)

Which tolerance rating would a low-quality resistor have?

20%

0.1%

5%

10%

B-004-06-08 (2)

If a carbon resistor's temperature is increased, what will happen to the resistance?

It will stay the same

It will change depending on the resistor's temperature coefficient rating

It will become time dependent

It will increase by 20% for every 10 degrees centigrade

B-004-06-09 (3)

A gold band on a resistor indicates the tolerance is:

20%

10%

5%

1%

B-004-06-10 (1)

A resistor with a colour code of brown, black, and red, would have a value of:

1000 ohms

100 ohms

10 ohms

10 000 ohms

B-004-06-11 (4)

A resistor is marked with the colors red, violet and yellow. This resistor has a value of:

274

72 k

27 M

270 k

B-005-01-01 (2)

If a dial marked in megahertz shows a reading of 3.525 MHz, what would it show if it were marked in kilohertz?

35.25 kHz

3525 kHz

3 525 000 kHz

0.003525 kHz

B-005-01-02 (1)

If an ammeter marked in amperes is used to measure a 3000 milliamperes current, what reading would it show?

3 amperes

0.003 ampere

0.3 ampere

3 000 000 amperes

B-005-01-03 (1)

If a voltmeter marked in volts is used to measure a 3500 millivolt potential, what reading would it show?

3.5 volts

0.35 volt

35 volts

350 volts

B-005-01-04 (3)

How many microfarads is 1 000 000 picofarads?

1 000 000 000 microfarads

1000 microfarads

1 microfarad

0.001 microfarad

B-005-01-05 (2)

If you have a hand-held transceiver which puts out 500 milliwatts, how many watts would this be?

5

0.5

50

0.02

B-005-01-06 (4)

A kilohm is:

0.1 ohm

0.001 ohm

10 ohms

1000 ohms

B-005-01-07 (1)

6.6 kilovolts is equal to:

6600 volts

660 volts

66 volts

66 000 volts

B-005-01-08 (4)

A current of one quarter ampere may be written as:

0.5 amperes

0.25 milliampere

250 microampere

250 milliamperes

B-005-01-09 (2)

How many millivolts are equivalent to two volts?

0.000002

2 000

2 000 000

0.002

B-005-01-10 (1)

One megahertz is equal to:

1 000 kHz

100 kHz

0.001 Hz

10 Hz

B-005-01-11 (4)

An inductance of 10 000 microhenrys may be stated correctly as:

100 millihenrys

10 henrys

1 000 henrys

10 millihenrys

B-005-02-01 (2)

Name three good electrical conductors.

Gold, silver, wood

Gold, silver, aluminum

Copper, aluminum, paper

Copper, gold, mica

B-005-02-02 (3)

Name four good electrical insulators.

Plastic, rubber, wood, carbon

Paper, glass, air, aluminum

Glass, air, plastic, porcelain

Glass, wood, copper, porcelain

B-005-02-03 (4)

Why do resistors sometimes get hot when in use?

Their reactance makes them heat up

Hotter circuit components nearby heat them up

They absorb magnetic energy which makes them hot

Some electrical energy passing through them is lost as heat

B-005-02-04 (4)

What is the best conductor among the following materials?

carbon

silicon

aluminium

copper

B-005-02-05 (1)

The material listed, which will most readily allow an electric current to flow, is called?

a conductor

an insulator

a resistor

a dielectric

B-005-02-06 (4)

A length of metal is connected in a circuit and is found to conduct electricity very well. It would be best described as having a:

high resistance
high wattage
low wattage
low resistance

B-005-02-07 (2)

The letter "R" is the symbol for:
impedance
resistance
reluctance
reactance

B-005-02-08 (1)

The reciprocal of resistance is:
conductance
reactance
reluctance
permeability

B-005-02-09 (1)

Voltage drop means:
voltage developed across the terminals of a component
any point in a radio circuit which has zero voltage
difference in voltage at output terminals of a transformer
the voltage which is dissipated before useful work is accomplished

B-005-02-10 (2)

The resistance of a conductor changes with:
voltage
temperature
current
humidity

B-005-02-11 (1)

The most common material used to make a resistor is:

carbon
gold
mica
lead

B-005-03-01 (2)

What is the word used to describe how fast electrical energy is used?

Current
Power
Voltage
Resistance

B-005-03-02 (3)

If you have light bulbs marked 40 watts, 60 watts and 100 watts, which one will use electrical energy the fastest?

They will all be the same
The 40 watt bulb
The 100 watt bulb
The 60 watt bulb

B-005-03-03 (3)

What is the basic unit of electrical power?

The ampere
The volt
The watt
The ohm

B-005-03-04 (2)

Which electrical circuit will have no current?

A short circuit
An open circuit
A complete circuit
A closed circuit

B-005-03-05 (2)

Which electrical circuit uses too much current?

A dead circuit
A short circuit
A closed circuit
An open circuit

B-005-03-06 (3)

Power is expressed in:
volts
amperes
watts
ohms

B-005-03-07 (3)

Which of the following two quantities should be multiplied together to find power?

Inductance and capacitance
Voltage and inductance
Voltage and current
Resistance and capacitance

B-005-03-08 (4)

Which two electrical units multiplied together give the unit "watts"?

Volts and farads
Farads and henrys
Amperes and henrys
Volts and amperes

B-005-03-09 (4)

A resistor in a circuit becomes very hot and starts to burn. This is because the resistor is dissipating too much:

voltage
resistance
current
power

B-005-03-10 (3)

High power resistors are usually large with heavy leads. The size aids the operation of the resistor by:
allowing higher voltage to be handled
increasing the effective resistance of the resistor
allowing heat to dissipate more readily
making it shock proof

B-005-03-11 (3)

The resistor that could dissipate the most heat would be marked:

100 ohms

2 ohms

20 watts

0.5 watt

B-005-04-01 (3)

If a current of 2 amperes flows through a 50-ohm resistor, what is the voltage across the resistor?

48 volts

52 volts

100 volts

25 volts

B-005-04-02 (1)

How is the current in a DC circuit calculated when the voltage and resistance are known?

Current equals voltage divided by resistance

Current equals resistance multiplied by voltage

Current equals resistance divided by voltage

Current equals power divided by voltage

B-005-04-03 (2)

How is the resistance in a DC circuit calculated when the voltage and current are known?

Resistance equals current multiplied by voltage

Resistance equals voltage divided by current

Resistance equals power divided by voltage

Resistance equals current divided by voltage

B-005-04-04 (4)

How is the voltage in a DC circuit calculated when the current and resistance are known?

Voltage equals current divided by resistance

Voltage equals resistance divided by current

Voltage equals power divided by current

Voltage equals current multiplied by resistance

B-005-04-05 (2)

If a 12-volt battery supplies 0.25 ampere to a circuit, what is the circuit's resistance?

3 ohms

48 ohms

12 ohms

0.25 ohm

B-005-04-06 (1)

Calculate the value of resistance necessary to drop 100 volts with current flow of .8 milliamperes:

125 kilohms

125 ohms

1250 ohms

1.25 kilohms

B-005-04-07 (1)

The voltage required to force a current of 4.4 amperes through a resistance of 50 ohms is:

220 volts

2220 volts

22.0 volts

0.220 volt

B-005-04-08 (4)

A lamp has a resistance of 30 ohms and a 6 volt battery is connected. The current flow will be:

2 amperes

0.5 ampere

0.005 ampere

0.2 ampere

B-005-04-09 (1)

What voltage would be needed to supply a current of 200 mA, to operate an electric lamp which has a resistance of 25 ohms?

5 volts

8 volts

175 volts

225 volts

B-005-04-10 (1)

The resistance of a circuit can be found by using one of the following:

$R = E/I$

$R = I/E$

$R = E/R$

$R = E \times I$

B-005-04-11 (1)

If a 3 volt battery supplies 300 mA to a circuit, the circuit resistance is:

10 ohms

9 ohms

5 ohms

3 ohms

B-005-05-01 (1)

In a parallel circuit with a voltage source and several branch resistors, how is the total current related to the current in the branch resistors?

It equals the sum of the branch current through each resistor

It equals the average of the branch current through each resistor

It decreases as more parallel resistors are added to the circuit

It is the sum of each resistor's voltage drop multiplied by the total number of resistors

B-005-05-02 (1)

A 6 volt battery is connected across three resistances of connected in parallel. The current through the 10 ohms, 15 ohms and 20 ohms separate resistances, when added together, equals the total current drawn from the battery
The current flowing through the 10 ohm resistance is less than that flowing through the 20 ohm resistance
The voltage drop across each resistance added together equals 6 volts
The voltage drop across the 20 ohm resistance is greater than the voltage across the 10 ohm resistance

B-005-05-03 (1)

Total resistance in a parallel circuit: is always less than the smallest resistance
depends upon the IR drop across each branch
could be equal to the resistance of one branch
depends upon the applied voltage

B-005-05-04 (1)

Two resistors are connected in parallel and are connected across a 40 volt battery. If each resistor is 1000 ohms, the total current is:
80 milliamperes
40 milliamperes
80 amperes
40 amperes

B-005-05-05 (1)

The total resistance of resistors connected in series is:
greater than the resistance of any one resistor
less than the resistance of any one resistor
equal to the highest resistance present
equal to the lowest resistance present

B-005-05-06 (1)

Five 10 ohm resistors connected in series equals:
50 ohms
5 ohms
10 ohms
1 ohm

B-005-05-07 (4)

Which series combination of resistors would replace a single 120 ohm resistor?
six 22 ohm
two 62 ohm
five 100 ohm
five 24 ohm

B-005-05-08 (2)

If ten resistors of equal value were wired in parallel, the total resistance would be:
 $10 / R$
 $R / 10$
 $10 \times R$
 $10 + R$

B-005-05-09 (4)

The total resistance of four 68 ohm resistors wired in parallel is:
12 ohms
34 ohms
272 ohms
17 ohms

B-005-05-10 (3)

Two resistors are in parallel. Resistor A carries twice the current of resistor B, which means that:
the voltage across B is twice that across A
the voltage across A is twice that across B
A has half the resistance of B
B has half the resistance of A

B-005-05-11 (2)

The total current in a parallel circuit is equal to the:

source voltage divided by the value of one of the resistive elements

sum of the currents through all the parallel branches

source voltage divided by the sum of the resistive elements

current in any one of the parallel branches

1/2 watt

4 watts

B-005-06-05 (3)

When two 500 ohm 1 watt resistors are connected in parallel, they can dissipate a maximum total power of:

1/2 watt

1 watt

2 watts

4 watts

B-005-06-01 (4)

Why would a large size resistor be used instead of a smaller one of the same resistance?

For better response time

For a higher current gain

For less impedance in the circuit

For greater power dissipation

B-005-06-06 (1)

If the voltage applied to two resistors in series is doubled, how much will the total power change?

increase four times

decrease to half

double

no change

B-005-06-02 (1)

How many watts of electrical power are used by a 12-VDC light bulb that draws 0.2 ampere?

2.4 watts

60 watts

24 watts

6 watts

B-005-06-07 (4)

If the power is 500 watts and the resistance is 20 ohms, the current is:

2.5 amps

10 amps

25 amps

5 amps

B-005-06-03 (2)

The DC input power of a transmitter operating at 12 volts and drawing 500 milliamps would be:

20 watts

6 watts

500 watts

12 watts

B-005-06-08 (1)

A 12 volt light bulb is rated at a power of 30 watts. The current drawn would be:

30/12 amps

18 amps

360 amps

12/30 amps

B-005-06-04 (2)

When two 500 ohm 1 watt resistors are connected in series, the maximum total power that can be dissipated by the resistors is:

1 watt

2 watts

B-005-06-09 (1)

If two 10 ohm resistors are connected in series with a 10 volt battery, the power consumption would be:

5 watts

10 watts

20 watts

100 watts

B-005-06-10 (3)

One advantage of replacing a 50 ohm resistor with a parallel combination of two similarly rated 100 ohm resistors is that the parallel combination will have:
the same resistance but lesser power rating
greater resistance and similar power rating
the same resistance but greater power rating
lesser resistance and similar power rating

B-005-06-11 (3)

Resistor wattage ratings are:
calculated according to physical size
expressed in joules per second
determined by heat dissipation qualities
variable in steps of one hundred

B-005-07-01 (3)

What term means the number of times per second that an alternating current flows back and forth?
Speed
Pulse rate
Frequency
Inductance

B-005-07-02 (3)

Approximately what frequency range can most humans hear?
20 000 - 30 000 Hz
200 - 200 000 Hz
20 - 20 000 Hz
0 - 20 Hz

B-005-07-03 (4)

Why do we call signals in the range 20 Hz to 20 000 Hz audio frequencies?
Because the human ear cannot sense anything in this range
Because this range is too low for radio energy

Because the human ear can sense radio waves in this range

Because the human ear can sense sounds in this range

B-005-07-04 (1)

Electrical energy at a frequency of 7125 kHz is in what frequency range?

Radio

Audio

Hyper

Super-high

B-005-07-05 (1)

What is the name for the distance an AC signal travels during one complete cycle?

Wavelength

Wave speed

Waveform

Wave spread

B-005-07-06 (4)

What happens to a signal's wavelength as its frequency increases?

It gets longer

It stays the same

It disappears

It gets shorter

B-005-07-07 (3)

What happens to a signal's frequency as its wavelength gets longer?

It disappears

It stays the same

It goes down

It goes up

B-005-07-08 (2)

What does 60 hertz (Hz) mean?

6000 metres per second

60 cycles per second

60 metres per second

6000 cycles per second

B-005-07-09 (3)

If the frequency of the waveform is 100 Hz, the time for one cycle is:

- 10 seconds
- 0.0001 second
- 0.01 second
- 1 second

B-005-07-10 (1)

Current in an AC circuit goes through a complete cycle in 0.1 second. This means the AC has a frequency of:

- 10 Hz
- 1 Hz
- 100 Hz
- 1000 Hz

B-005-07-11 (4)

A signal is composed of a fundamental frequency of 2 kHz and another of 4 kHz. This 4 kHz signal is referred to as:
a fundamental of the 2 kHz signal
the DC component of the main signal
a dielectric signal of the main signal
a harmonic of the 2 kHz signal

B-005-08-01 (2)

A two-times increase in power results in a change of how many dB?

- 6 dB higher
- 3 dB higher
- 12 dB higher
- 1 dB higher

B-005-08-02 (4)

How can you decrease your transmitter's power by 3 dB?

- Divide the original power by 1.5
- Divide the original power by 3
- Divide the original power by 4
- Divide the original power by 2

B-005-08-03 (3)

How can you increase your transmitter's power by 6 dB?

- Multiply the original power by 3

Multiply the original power by 2

Multiply the original power by 4

Multiply the original power by 1.5

B-005-08-04 (4)

If a signal-strength report is "10 dB over S9", what should the report be if the transmitter power is reduced from 1500 watts to 150 watts?

- S9 plus 3 dB
- S9 minus 10 dB
- S9 plus 5 dB
- S9

B-005-08-05 (1)

If a signal-strength report is "20 dB over S9", what should the report be if the transmitter power is reduced from 1500 watts to 150 watts?

- S9 plus 10 dB
- S9 plus 5 dB
- S9 plus 3 dB
- S9

B-005-08-06 (2)

The unit "decibel" is used to indicate:
an oscilloscope wave form
a mathematical ratio
certain radio waves
a single side band signal

B-005-08-07 (3)

The power output from a transmitter increases from 1 watt to 2 watts. This is a db increase of:

- 30
- 6
- 3
- 1

B-005-08-08 (2)

The power of a transmitter is increased from 5 watts to 50 watts by a linear amplifier. The power gain, expressed in dB, is:

- 30 dB
- 10 dB
- 40 dB
- 20 dB

B-005-08-09 (2)

You add a 9 dB gain amplifier to your 2 watt handheld. What is the power output of the combination?

- 11 watts
- 16 watts
- 20 watts
- 18 watts

B-005-08-10 (1)

The power of a transmitter is increased from 2 watts to 8 watts. This is a power gain of _____ dB.

- 6 dB
- 3 dB
- 8 dB
- 9 dB

B-005-08-11 (4)

A local amateur reports your 100W 2M simplex VHF transmission as 30 dB over S9. To reduce your signal to S9, you would reduce your power to _____ watts.

- 1 W
- 10 W
- 33.3 W
- 100 mW

B-005-09-01 (4)

If two equal-value inductors are connected in series, what is their total inductance?

- Half the value of one inductor
- The same as the value of either inductor

The value of one inductor times the value of the other

Twice the value of one inductor

B-005-09-02 (4)

If two equal-value inductors are connected in parallel, what is their total inductance?

- Twice the value of one inductor
- The same as the value of either inductor
- The value of one inductor times the value of the other
- Half the value of one inductor

B-005-09-03 (4)

If two equal-value capacitors are connected in series, what is their total capacitance?

- Twice the value of one capacitor
- The same as the value of either capacitor
- The value of one capacitor times the value of the other
- Half the value of either capacitor

B-005-09-04 (2)

If two equal-value capacitors are connected in parallel, what is their total capacitance?

- The same as the value of either capacitor
- Twice the value of one capacitor
- The value of one capacitor times the value of the other
- Half the value of one capacitor

B-005-09-05 (3)

What determines the inductance of a coil?

The core material, the number of turns used to wind the core and the frequency of the current through the coil

The core diameter, the number of turns of wire used to wind the coil and the type of metal used for the wire

The core material, the core diameter, the length of the coil and the number of turns of wire used to wind the coil

The core material, the core diameter, the length of the coil and whether the coil is mounted horizontally or vertically

B-005-09-06 (1)

What determines the capacitance of a capacitor?

The material between the plates, the area of one side of one plate, the number of plates and the spacing between the plates

The material between the plates, the number of plates and the size of the wires connected to the plates

The number of plates, the spacing between the plates and whether the dielectric material is N type or P type

The material between the plates, the area of one plate, the number of plates and the material used for the protective coating

B-005-09-07 (4)

If two equal-value capacitors are connected in parallel, what is their capacitance?

The same value of either capacitor

The value of one capacitor times the value of the other

Half the value of either capacitor

Twice the value of either capacitor

B-005-09-08 (2)

To replace a faulty 10 millihenry choke, you could use two:

Two 20 millihenry chokes in series

Two 5 millihenry chokes in series

Two 30 millihenry chokes in parallel

Two 5 millihenry chokes in parallel

B-005-09-09 (3)

Three 15 microfarad capacitors are wired in series. The total capacitance of this arrangement is:

45 microfarads

12 microfarads

5 microfarads

18 microfarads

B-005-09-10 (2)

Which series combinations of capacitors would best replace a faulty 10 microfarad capacitor?

two 10 microfarad capacitors

two 20 microfarad capacitors

twenty 2 microfarad capacitors

ten 2 microfarad capacitors

B-005-09-11 (3)

The total capacitance of two or more capacitors in series is:

found by adding each of the capacitors together and dividing by the total number of capacitors

found by adding each of the capacitors together

always less than the smallest capacitor

always greater than the largest capacitor

B-005-10-01 (3)

How does a coil react to AC?

As the amplitude of the applied AC increases, the reactance decreases

As the amplitude of the applied AC increases, the reactance increases

As the frequency of the applied AC increases, the reactance increases

As the frequency of the applied AC increases, the reactance decreases

B-005-10-02 (1)

How does a capacitor react to AC?
As the frequency of the applied AC increases, the reactance decreases
As the frequency of the applied AC increases, the reactance increases
As the amplitude of the applied AC increases, the reactance increases
As the amplitude of the applied AC increases, the reactance decreases

B-005-10-03 (2)

The reactance of capacitors increases as:
applied voltage increases
AC frequency decreases
applied voltage decreases
AC frequency increases

B-005-10-04 (3)

In inductances, AC may be opposed by both resistance of winding wire and reactance due to inductive effect. The term which includes resistance and reactance is:
resonance
inductance
impedance
capacitance

B-005-10-05 (1)

Capacitive reactance:
decreases as frequency increases
applies only to series RLC circuits
increases as frequency increases
increases with the time constant

B-005-10-06 (4)

Inductive reactance may be increased by:
a decrease in the applied frequency
a decrease in the supplied current
an increase in the applied voltage
an increase in the applied frequency

B-005-10-07 (2)

A choke coil of 4.25 microhenrys is used in a circuit at a frequency of 200 MHz. Its reactance is approximately:
5 740 ohms
5 340 ohms
7 540 ohms
4 750 ohms

B-005-10-08 (1)

The capacitive reactance of a 25 microfarad capacitor connected to a 60 hertz line is:
106.1 ohms
9 420 ohms
2.4 ohms
1 500 ohms

B-005-10-09 (4)

A power-supply filter has a capacitor of 10 microfarad. What is the capacitive reactance of this capacitor to a frequency of 60 hertz?
200 ohms
100 ohms
500 ohms
265 ohms

B-005-10-10 (1)

What is the approximate inductive reactance of a 1 henry choke coil used in a 60 hertz circuit?
376 ohms
3760 ohms
188 ohms
1888 ohms

B-005-10-11 (1)

In general, the reactance of inductors increases with:
increasing AC frequency
decreasing AC frequency
decreasing applied voltage
increasing applied voltage

B-005-11-01 (1)

If no load is attached to the secondary winding of a transformer, what is current in the primary winding called?

Magnetizing current

Direct current

Excitation current

Stabilizing current

B-005-11-02 (1)

A transformer operates a 6.3 volt 2 ampere light bulb from its secondary winding. The power consumed by the primary winding is approximately:

13 watts

6 watts

8 watts

3 watts

B-005-11-03 (4)

A transformer has a 240 volt primary that draws a current of 250 mA from the mains supply. Assuming no losses, what current would be available from a 12 volt secondary?

215 amperes

25 amperes

50 amperes

5 amperes

B-005-11-04 (2)

In a mains power transformer, the primary winding has 250 turns, and the secondary has 500. If the input voltage is 110 volts, the likely secondary voltage is:

440 V

220 V

560 V

24 V

B-005-11-05 (3)

The strength of the magnetic field around a conductor in air is:
inversely proportional to the diameter of the conductor

directly proportional to the diameter of the conductor

directly proportional to the current in the conductor

inversely proportional to the voltage on the conductor

B-005-11-06 (1)

Maximum induced voltage in a coil occurs when:

current is going through its greatest rate of change

the current through the coil is of a DC nature

current is going through its least rate of change

the magnetic field around the coil is not changing

B-005-11-07 (3)

The voltage induced in a conductor moving in a magnetic field is at a maximum when the movement is:
made in a counterclockwise direction
parallel to the lines of force
perpendicular to the lines of force
made in a clockwise direction

B-005-11-08 (3)

A 100% efficient transformer has a turns ratio of 1/5. If the secondary current is 50 mA, the primary current is:

2 500 mA

0.01 A

0.25 A

0.25 mA

B-005-11-09 (4)

A force of repulsion exists between two _____ magnetic poles.

unlike

positive

negative

like

B-005-11-10 (4)

A permanent magnet would most likely be made from:

copper
aluminum
brass
steel

B-005-11-11 (3)

The fact that energy transfer from primary to secondary windings in a power transformer is not perfect is indicated by:

electrostatic shielding
large secondary currents
warm iron laminations
high primary voltages

B-005-12-01 (1)

Resonance is the condition that exists when:

inductive reactance and capacitive reactance are equal
inductive reactance is the only opposition in the circuit
the circuit contains no resistance
resistance is equal to the reactance

B-005-12-02 (4)

Parallel tuned circuits offer:

low impedance at resonance
zero impedance at resonance
an impedance equal to resistance of the circuit
very high impedance at resonance

B-005-12-03 (4)

Resonance is an electrical property used to describe:

an inductor
a set of parallel inductors
the results of tuning a varicap (varactor)
the frequency characteristic of a coil and capacitor circuit

B-005-12-04 (4)

A tuned circuit is formed from two basic components. These are:

resistors and transistors
directors and reflectors
diodes and transistors
inductors and capacitors

B-005-12-05 (1)

When a parallel coil-capacitor combination is supplied with AC of different frequencies, there will be one frequency where the impedance will be highest. This is the:
resonant frequency
impedance frequency
inductive frequency
reactive frequency

B-005-12-06 (4)

In a parallel-resonant circuit at resonance, the circuit has a:

low impedance
low mutual inductance
high mutual inductance
high impedance

B-005-12-07 (1)

In a series resonant circuit at resonance, the circuit has:

low impedance
high impedance
low mutual inductance
high mutual inductance

B-005-12-08 (4)

A coil and an air-spaced capacitor are arranged to form a resonant circuit. The resonant frequency will remain the same if we:

increase the area of plates in the capacitor
replace the air dielectric with oil in the capacitor
wind more turns on the coil
add a resistor to the circuit

B-005-12-09 (2)

Resonant circuits in a receiver are used to:

- filter direct current
- select signal frequencies
- increase power
- adjust voltage levels

B-005-12-10 (1)

Resonance is the condition that exists when:

- inductive reactance and capacitive reactance are equal and opposite in sign
- inductive reactance is the only opposition in the circuit
- the circuit contains no resistance
- resistance is equal to the reactance

B-005-12-11 (3)

When a series LCR circuit is tuned to the frequency of the source, the:

- line current lags the applied voltage
- line current leads the applied voltage
- line current reaches maximum
- impedance is maximum

B-005-13-01 (4)

How is a voltmeter usually connected to a circuit under test?

- In series with the circuit
- In quadrature with the circuit
- In phase with the circuit
- In parallel with the circuit

B-005-13-02 (2)

How is an ammeter usually connected to a circuit under test?

- In quadrature with the circuit
- In series with the circuit
- In phase with the circuit
- In parallel with the circuit

B-005-13-03 (2)

What does a multimeter measure?

- Resistance, capacitance and inductance
- Voltage, current and resistance

Resistance and reactance

SWR and power

B-005-13-04 (3)

The correct instrument to measure plate current or collector current of a transmitter is:

- an ohmmeter
- a wattmeter
- an ammeter
- a voltmeter

B-005-13-05 (1)

Which of the following meters would you use to measure the power supply current drawn by a small hand-held transistorized receiver?

- a DC ammeter
- an RF ammeter
- an RF power meter
- an electrostatic voltmeter

B-005-13-06 (2)

When measuring current drawn from a DC power supply, it is true to say that the meter will act in circuit as:

- a perfect conductor
- a low value resistance
- an extra current drain
- an insulator

B-005-13-07 (2)

When measuring the current drawn by a receiver from a power supply, the current meter should be placed:

- in series with both receiver power leads
- in series with one of the receiver power leads
- in parallel with both receiver power supply leads
- in parallel with one of the receiver power leads

B-005-13-08 (3)

Potential difference is measured by means of:
a wattmeter
an ohmmeter
a voltmeter
an ammeter

B-005-13-09 (3)

Voltage drop means:
the voltage which is dissipated before useful work is accomplished
difference in voltage at output terminals of a transformer
voltage between the terminals of a component
any point in a radio circuit which has zero voltage

B-005-13-10 (3)

The instrument used for measuring the flow of electrical current is the:
faradmeter
wattmeter
ammeter
voltmeter

B-005-13-11 (2)

In measuring volts and amperes, the connections should be made with:
the voltmeter in series and ammeter in parallel
the voltmeter in parallel and ammeter in series
both voltmeter and ammeter in series
both voltmeter and ammeter in parallel

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 adverse 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

B-006-06-01 (1)

What device might allow use of an antenna on a band it was not designed for?

- An antenna tuner
- An SWR meter
- A low pass filter
- A high pass filter

B-006-06-02 (1)

What does an antenna matching unit do?

It matches a transceiver to a mismatched antenna system

It helps a receiver automatically tune in stations that are far away

It switches an antenna system to a transmitter when sending, and to a receiver when listening

It switches a transceiver between different kinds of antennas connected to one feed line

B-006-06-03 (2)

What would you use to connect a coaxial cable of 50 ohms impedance to an antenna of 35 ohms impedance?

- An SWR meter
- An impedance-matching device
- A low pass filter
- A terminating resistor

B-006-06-04 (3)

When will a power source deliver maximum output to the load?

When air wound transformers are used instead of iron-core transformers

When the power-supply fuse rating equals the primary winding current

When the impedance of the load is equal to the impedance of the source

When the load resistance is infinite

B-006-06-05 (2)

What happens when the impedance of an electrical load is equal to the internal impedance of the power source?

The electrical load is shorted

The source delivers maximum power to the load

No current can flow through the circuit

The source delivers minimum power to the load

B-006-06-06 (4)

Why is impedance matching important?

So the load will draw minimum power from the source

To ensure that there is less resistance than reactance in the circuit

To ensure that the resistance and reactance in the circuit are equal

So the source can deliver maximum power to the load

B-006-06-07 (3)

To obtain efficient power transmission from a transmitter to an antenna requires:

- high load impedance
- low ohmic resistance
- matching of impedances
- inductive impedance

B-006-06-08 (2)

To obtain efficient transfer of power from a transmitter to an antenna, it is important that there is a:

- high load impedance
- matching of impedance
- proper method of balance
- low ohmic resistance

B-006-06-09 (4)

If an antenna is correctly matched to a transmitter, the length of transmission line:

- must be a full wavelength long
- must be an odd number of quarter-wave
- must be an even number of half-waves
- will have no effect on the matching

B-006-06-10 (2)

The reason that an RF transmission line should be matched at the transmitter end is to:

ensure that the radiated signal has the intended polarization
transfer the maximum amount of power to the antenna
prevent frequency drift
overcome fading of the transmitted signal

B-006-06-11 (4)

If the centre impedance of a folded dipole is approximately 300 ohms, and you are using RG8U (50 ohms) coaxial lines, what is the ratio required to have the line and the antenna matched?

2:1
4:1
10:1
6:1

B-006-07-01 (3)

What does horizontal wave polarization mean?

The electric and magnetic lines of force of a radio wave are perpendicular to the earth's surface

The electric lines of force of a radio wave are perpendicular to the earth's surface

The electric lines of force of a radio wave are parallel to the earth's surface

The magnetic lines of force of a radio wave are parallel to the earth's surface

B-006-07-02 (2)

What does vertical wave polarization mean?

The magnetic lines of force of a radio wave are perpendicular to the earth's surface

The electric lines of force of a radio wave are perpendicular to the earth's surface

The electric and magnetic lines of force of a radio wave are parallel to the earth's surface

The electric lines of force of a radio wave are parallel to the earth's surface

B-006-07-03 (2)

What electromagnetic wave polarization does a Yagi antenna have when its elements are parallel to the earth's surface?

Helical
Horizontal
Vertical
Circular

B-006-07-04 (4)

What electromagnetic wave polarization does a half-wavelength antenna have when it is perpendicular to the earth's surface?

Circular
Horizontal
Parabolical
Vertical

B-006-07-05 (2)

Polarization of an antenna is determined by:

the height of the antenna
the electric field
the type of antenna
the magnetic field

B-006-07-06 (1)

An isotropic antenna is a:
hypothetical point source
infinitely long piece of wire
dummy load
half-wave reference dipole

B-006-07-07 (4)

What is the antenna radiation pattern for an isotropic radiator?

A parabola

A cardioid

A unidirectional cardioid

A sphere

B-006-07-08 (3)

VHF signals from a mobile station using a vertical whip antenna will normally be best received using a:

random length of wire

horizontal ground-plane antenna

vertical ground-plane antenna

horizontal dipole antenna

B-006-07-09 (4)

A dipole antenna will emit a vertically polarized wave if it is:

fed with the correct type of RF

too near to the ground

parallel with the ground

mounted vertically

B-006-07-10 (2)

If an electromagnetic wave leaves an antenna vertically polarized, it will arrive at the receiving antenna, by ground wave:

polarized at right angles to original

vertically polarized

horizontally polarized

polarized in any plane

B-006-07-11 (4)

Compared with a horizontal antenna, a vertical antenna will receive a vertically polarized radio wave:

at weaker strength

without any comparative difference

if the antenna changes the polarization

at greater strength

B-006-08-01 (1)

If an antenna is made longer, what happens to its resonant frequency?

It decreases

It increases

It stays the same

It disappears

B-006-08-02 (2)

If an antenna is made shorter, what happens to its resonant frequency?

It stays the same

It increases

It disappears

It decreases

B-006-08-03 (3)

The wavelength for a frequency of 25 MHz is:

15 metres (49.2 ft)

4 metres (13.1 ft)

12 metres (39.4 ft)

32 metres (105 ft)

B-006-08-04 (1)

The velocity of propagation of radio frequency energy in free space is:

300 000 kilometres per second

3000 kilometres per second

150 kilometres per second

186 000 kilometres per second

B-006-08-05 (3)

Adding a series inductance to an antenna would:

increase the resonant frequency

have little effect

decrease the resonant frequency

have no change on the resonant frequency

B-006-08-06 (3)

The resonant frequency of an antenna may be increased by:

- lowering the radiating element
- increasing the height of the radiating element
- shortening the radiating element
- lengthening the radiating element

B-006-08-07 (2)

The speed of a radio wave:

- is infinite in space
- is the same as the speed of light
- is always less than half speed of light
- varies directly with frequency

B-006-08-08 (1)

At the end of suspended antenna wire, insulators are used. These act to:

- limit the electrical length of the antenna
- increase the effective antenna length
- allow the antenna to be more easily held vertically
- prevent any loss of radio waves by the antenna

B-006-08-09 (2)

To lower the resonant frequency of an antenna, the operator should:

- shorten it
- lengthen it
- ground one end
- centre feed it with TV ribbon feeder

B-006-08-10 (2)

One solution to multiband operation with a shortened radiator is the "trap dipole" or trap vertical. These "traps" are actually:

- large wire-wound resistors
- a coil and capacitor in parallel
- coils wrapped around a ferrite rod
- hollow metal cans

B-006-08-11 (2)

The wavelength corresponding to a frequency of 2 MHz is:

- 360 m (1181 ft)
- 150 m (492 ft)
- 1500 m (4921 ft)
- 30 m (98 ft)

B-006-09-01 (3)

What is a parasitic beam antenna?

An antenna where the driven element obtains its radio energy by induction or radiation from director elements

An antenna where all elements are driven by direct connection to the feed line

An antenna where some elements obtain their radio energy by induction or radiation from a driven element

An antenna where wave traps are used to magnetically couple the elements

B-006-09-02 (2)

How can the bandwidth of a parasitic beam antenna be increased?

- Use traps on the elements
- Use larger diameter elements
- Use tapered-diameter elements
- Use closer element spacing

B-006-09-03 (2)

If a slightly shorter parasitic element is placed 0.1 wavelength away from an HF dipole antenna, what effect will this have on the antenna's radiation pattern?

A major lobe will develop in the horizontal plane, parallel to the two elements

A major lobe will develop in the horizontal plane, toward the parasitic element

A major lobe will develop in the vertical plane, away from the ground

The radiation pattern will not be affected

B-006-09-04 (3)

If a slightly longer parasitic element is placed 0.1 wavelength away from an HF dipole antenna, what effect will this have on the antenna's radiation pattern?

A major lobe will develop in the horizontal plane, parallel to the two elements

A major lobe will develop in the vertical plane, away from the ground

A major lobe will develop in the horizontal plane, away from the parasitic element, toward the dipole

The radiation pattern will not be affected

B-006-09-05 (1)

The property of an antenna, which defines the range of frequencies to which it will respond, is called its:

bandwidth

front-to-back ratio

impedance

polarization

B-006-09-06 (4)

Approximately how much gain does a half-wave dipole have over an isotropic radiator?

1.5 dB

3.0 dB

6.0 dB

2.1 dB

B-006-09-07 (4)

What is meant by antenna gain?

The numerical ratio of the signal in the forward direction to the signal in the back direction

The numerical ratio of the amount of power radiated by an antenna compared to the transmitter output power

The final amplifier gain minus the transmission line losses

The numerical ratio relating the radiated signal strength of an antenna to that of another antenna

B-006-09-08 (4)

What is meant by antenna bandwidth?

Antenna length divided by the number of elements

The angle between the half- power radiation points

The angle formed between two imaginary lines drawn through the ends of the elements

The frequency range over which the antenna may be expected to perform well

B-006-09-09 (1)

In free space, what is the radiation characteristic of a half-wave dipole?

Minimum radiation from the ends, maximum broadside

Maximum radiation from the ends, minimum broadside

Omnidirectional

Maximum radiation at 45 degrees to the plane of the antenna

B-006-09-10 (1)

The gain of an antenna, especially on VHF and above, is quoted in dBi. The "i" in this expression stands for:

isotropic

ideal

ionosphere

interpolated

B-006-09-11 (2)

The front-to-back ratio of a beam antenna is:

the forward power of the major lobe to the power in the backward direction both being measured at the 3 dB points

the ratio of the maximum forward power in the major lobe to the maximum backward power radiation

undefined

the ratio of the forward power at the 3 dB points to the power radiated in the backward direction

B-006-10-01 (3)

How do you calculate the length in metres (feet) of a quarter-wavelength vertical antenna?

Divide 468 (1532) by the antenna's operating frequency (in MHz)

Divide 300 (982) by the antenna's operating frequency (in MHz)

Divide 71.5 (234) by the antenna's operating frequency (in MHz)

Divide 150 (491) by the antenna's operating frequency (in MHz)

B-006-10-02 (2)

If you made a quarter-wavelength vertical antenna for 21.125 MHz, how long would it be?

3.6 metres (11.8 ft)

3.36 metres (11.0 ft)

7.2 metres (23.6 ft)

6.76 metres (22.2 ft)

B-006-10-03 (1)

If you made a half-wavelength vertical antenna for 223 MHz, how long would it be?

64 cm (25.2 in)

128 cm (50.4 in)

105 cm (41.3 in)

134.6 cm (53 in)

B-006-10-04 (2)

Why is a 5/8-wavelength vertical antenna better than a 1/4-wavelength vertical antenna for VHF or UHF mobile operations?

A 5/8-wavelength antenna has less corona loss

A 5/8-wavelength antenna has more gain

A 5/8-wavelength antenna is easier to install on a car

A 5/8-wavelength antenna can handle more power

B-006-10-05 (3)

If a magnetic-base whip antenna is placed on the roof of a car, in what direction does it send out radio energy?

Most of it is aimed high into the sky

Most of it goes equally in two opposite directions

It goes out equally well in all horizontal directions

Most of it goes in one direction

B-006-10-06 (3)

What is an advantage of downward sloping radials on a ground plane antenna?

It increases the radiation angle

It brings the feed point impedance closer to 300 ohms

It brings the feed point impedance closer to 50 ohms

It lowers the radiation angle

B-006-10-07 (1)

What happens to the feed point impedance of a ground-plane antenna when its radials are changed from horizontal to downward-sloping?

It increases

It decreases

It stays the same

It approaches zero

B-006-10-08 (4)

Which of the following transmission lines will give the best match to the base of a quarter-wave ground-plane antenna?

300 ohms balanced feed line

75 ohms balanced feed line

300 ohms coaxial cable

50 ohms coaxial cable

B-006-10-09 (1)

The main characteristic of a vertical antenna is that it will:
receive signals equally well from all compass points around it
be very sensitive to signals coming from horizontal antennas
require few insulators
be easy to feed with TV ribbon feeder

B-006-10-10 (1)

Why is a loading coil often used with an HF mobile vertical antenna?
To tune out capacitive reactance
To lower the losses
To lower the Q
To improve reception

B-006-10-11 (2)

What is the main reason why so many VHF base and mobile antennas are $5/8$ of a wavelength?
The angle of radiation is high giving excellent local coverage
The angle of radiation is low
It is easy to match the antenna to the transmitter
It's a convenient length on VHF

B-006-11-01 (4)

How many directly driven elements do most Yagi antennas have?
None
Two
Three
One

B-006-11-02 (4)

Approximately how long is the driven element of a Yagi antenna for 14.0 MHz?
5.21 metres (17 feet)
10.67 metres (35 feet)
20.12 metres (66 feet)
10.21 metres (33 feet and 6 inches)

B-006-11-03 (2)

Approximately how long is the director element of a Yagi antenna for 21.1 MHz?
5.18 metres (17 feet)
6.4 metres (21 feet)
3.2 metres (10.5 feet)
12.8 metres (42 feet)

B-006-11-04 (2)

Approximately how long is the reflector element of a Yagi antenna for 28.1 MHz?
4.88 metres (16 feet)
5.33 metres (17.5 feet)
10.67 metres (35 feet)
2.66 metres (8.75 feet)

B-006-11-05 (4)

What is one effect of increasing the boom length and adding directors to a Yagi antenna?
SWR increases
Weight decreases
Wind load decreases
Gain increases

B-006-11-06 (1)

What are some advantages of a Yagi with wide element spacing?
High gain, less critical tuning and wider bandwidth
High gain, lower loss and a low SWR
High front-to-back ratio and lower input resistance
Shorter boom length, lower weight and wind resistance

B-006-11-07 (4)

Why is a Yagi antenna often used for radiocommunications on the 20-metre band?

It provides excellent omnidirectional coverage in the horizontal plane
It is smaller, less expensive and easier to erect than a dipole or vertical antenna
It provides the highest possible angle of radiation for the HF bands
It helps reduce interference from other stations off to the side or behind

B-006-11-08 (2)

What does "antenna front-to-back ratio" mean in reference to a Yagi antenna?
The relative position of the driven element with respect to the reflectors and directors
The power radiated in the major radiation lobe compared to the power radiated in exactly the opposite direction
The power radiated in the major radiation lobe compared to the power radiated 90 degrees away from that direction
The number of directors versus the number of reflectors

B-006-11-09 (1)

What is a good way to get maximum performance from a Yagi antenna?
Optimize the lengths and spacing of the elements
Use RG-58 feed line
Use a reactance bridge to measure the antenna performance from each direction around the antenna
Avoid using towers higher than 9 metres (30 feet) above the ground

B-006-11-10 (4)

The spacing between the elements on a three-element Yagi antenna, representing the best overall choice, is _____ of a wavelength.

0.15

0.5

0.75

0.2

B-006-11-11 (2)

If the forward gain of a six-element Yagi is about 10 dB, what would the gain of two of these antennas be if they were "stacked"?

7 dB

13 dB

20 dB

10 dB

B-006-12-01 (4)

If you made a half-wavelength dipole antenna for 28.550 MHz, how long would it be?
10.5 metres (34.37 ft)
28.55 metres (93.45 ft)
5.08 metres (16.62 ft)
10.16 metres (33.26 ft)

B-006-12-02 (3)

What is one disadvantage of a random wire antenna?
It usually produces vertically polarized radiation
It must be longer than 1 wavelength
You may experience RF feedback in your station
You must use an inverted T matching network for multi-band operation

B-006-12-03 (1)

What is the low angle radiation pattern of an ideal half-wavelength dipole HF antenna installed parallel to the earth?

It is a figure-eight, perpendicular to the antenna

It is a circle (equal radiation in all directions)

It is two smaller lobes on one side of the antenna, and one larger lobe on the other side

It is a figure-eight, off both ends of the antenna

B-006-12-04 (2)

The impedances in ohms at the feed point of the dipole and folded dipole are, respectively:

73 and 150

73 and 300

52 and 100

52 and 200

B-006-12-05 (4)

A dipole transmitting antenna, placed so that the ends are pointing North/South, radiates:

mostly to the South and North

mostly to the South

equally in all directions

mostly to the East and West

B-006-12-06 (4)

How does the bandwidth of a folded dipole antenna compare with that of a simple dipole antenna?

It is essentially the same

It is less than 50%

It is 0.707 times the bandwidth

It is greater

B-006-12-07 (2)

What is a disadvantage of using an antenna equipped with traps?

It is too sharply directional at lower frequencies

It will radiate harmonics

It must be neutralized

It can only be used for one band

B-006-12-08 (1)

What is an advantage of using a trap antenna?

It may be used for multi-band operation

It has high directivity at the higher frequencies

It has high gain

It minimizes harmonic radiation

B-006-12-09 (1)

The "doublet antenna" is the most common in the amateur service. If you were to cut this antenna for 3.75 MHz, what would be its approximate length?

38 meters (125 ft.)

32 meters (105 ft.)

45 meters (145 ft.)

75 meters (245 ft.)

B-006-13-01 (3)

What is a cubical quad antenna?

A center-fed wire 1/2-electrical wavelength long

A vertical conductor 1/4- electrical wavelength high, fed at the bottom

Two or more parallel four-sided wire loops, each approximately one-electrical wavelength long

Four straight, parallel elements in line with each other, each approximately 1/2-electrical wavelength long

B-006-13-02 (1)

What is a delta loop antenna?

A type of cubical quad antenna, except with triangular elements rather than square

A large copper ring or wire loop, used in direction finding

An antenna system made of three vertical antennas, arranged in a triangular shape

An antenna made from several triangular coils of wire on an insulating form

B-006-13-03 (1)

Approximately how long is each side of a cubical quad antenna driven element for 21.4 MHz?

3.54 metres (11.7 feet)

0.36 metres (1.17 feet)

14.33 metres (47 feet)

143 metres (469 feet)

B-006-13-04 (2)

Approximately how long is each side of a cubical quad antenna driven element for 14.3 MHz?

21.43 metres (70.3 feet)

5.36 metres (17.6 feet)

53.34 metres (175 feet)

7.13 metres (23.4 feet)

B-006-13-05 (4)

Approximately how long is each leg of a symmetrical delta loop antenna driven element for 28.7 MHz?

2.67 metres (8.75 feet)

7.13 metres (23.4 feet)

10.67 metres (35 feet)

3.5 metres (11.5 feet)

B-006-13-06 (2)

Which statement about two- element delta loops and quad antennas is true?

They perform very well only at HF

They compare favorably with a three- element Yagi

They are effective only when

constructed using insulated wire

They perform poorly above HF

B-006-13-07 (1)

Compared to a dipole antenna, what are the directional radiation characteristics of a cubical quad antenna?

The quad has more directivity in both horizontal and vertical planes

The quad has more directivity in the horizontal plane but less directivity in the vertical plane

The quad has less directivity in the horizontal plane but more directivity in the vertical plane

The quad has less directivity in both horizontal and vertical planes

B-006-13-08 (3)

Moving the feed point of a multi- element quad antenna from a side parallel to the ground to a side perpendicular to the ground will have what effect?

It will change the antenna polarization from vertical to horizontal

It will significantly decrease the antenna feed point impedance

It will change the antenna polarization from horizontal to vertical

It will significantly increase the antenna feed point impedance

B-006-13-09 (2)

What does the term "antenna front-to-back ratio" mean in reference to a delta loop antenna?

The relative position of the driven element with respect to the reflectors and directors

The power radiated in the major radiation lobe compared to the power radiated in exactly the opposite direction

The power radiated in the major radiation lobe compared to the power radiated 90 degrees away from that direction

The number of directors versus the number of reflectors

B-006-13-10 (2)

The cubical "quad" or "quad" antenna consists of two or more square loops of wire. The driven element has an approximate overall length of:
three-quarters of a wavelength
one wavelength
two wavelengths
one-half wavelength

B-006-13-11 (2)

The delta loop antenna consists of two or more triangular structures mounted on a boom. The overall length of the driven element is approximately:
one-quarter of a wavelength
one wavelength
two wavelengths
one-half of a wavelength

B-007-01-01 (4)

What type of propagation usually occurs from one hand-held VHF transceiver to another nearby?

Tunnel propagation

Sky-wave propagation

Auroral propagation

Line-of-sight propagation

B-007-01-02 (4)

How does the range of sky-wave propagation compare to ground-wave propagation?

It is much shorter

It is about the same

It depends on the weather

It is much longer

B-007-01-03 (3)

When a signal is returned to earth by the ionosphere, what is this called?

Tropospheric propagation

Ground-wave propagation

Sky-wave propagation

Earth-moon-earth propagation

B-007-01-04 (1)

How are VHF signals propagated within the range of the visible horizon?

By direct wave

By sky wave

By plane wave

By geometric wave

B-007-01-05 (1)

Skywave is another name for:

ionospheric wave

tropospheric wave

ground wave

inverted wave

B-007-01-06 (4)

That portion of the radiation which is directly affected by the surface of the earth is called:

tropospheric wave

ionospheric wave

inverted wave

ground wave

B-007-01-07 (4)

At HF frequencies, line-of-sight transmission between two stations uses mainly the:
troposphere
skip wave
ionosphere
ground wave

B-007-01-08 (3)

The distance travelled by ground waves: depends on the maximum usable frequency
is more at higher frequencies
is less at higher frequencies
is the same for all frequencies

B-007-01-09 (3)

The radio wave which follows a path from the transmitter to the ionosphere and back to earth is known correctly as the:
F layer
surface wave
ionospheric wave
skip wave

B-007-01-10 (2)

Reception of high frequency (HF) radio waves beyond 4000 km is generally possible by:
ground wave
ionospheric wave
skip wave
surface wave

B-007-02-01 (2)

What causes the ionosphere to form?
Lightning ionizing the outer atmosphere
Solar radiation ionizing the outer atmosphere
Release of fluorocarbons into the atmosphere
Temperature changes ionizing the outer atmosphere

B-007-02-02 (3)

What type of solar radiation is most responsible for ionization in the outer atmosphere?
Microwave
Ionized particle
Ultraviolet
Thermal

B-007-02-03 (2)

Which ionospheric region is closest to the earth?
The E region
The D region
The F region
The A region

B-007-02-04 (3)

Which region of the ionosphere is the least useful for long distance radio-wave propagation?
The F2 region
The F1 region
The D region
The E region

B-007-02-05 (4)

What two sub-regions of ionosphere exist only in the daytime?
Troposphere and stratosphere
Electrostatic and electromagnetic
D and E
F1 and F2

B-007-02-06 (3)

When is the ionosphere most ionized?
Dawn
Midnight
Midday
Dusk

B-007-02-07 (1)

When is the ionosphere least ionized?

Shortly before dawn

Just after noon

Just after dusk

Shortly before midnight

B-007-02-08 (4)

Why is the F2 region mainly responsible for the longest distance radio-wave propagation?

Because it exists only at night

Because it is the lowest ionospheric region

Because it does not absorb radio waves as much as other ionospheric regions

Because it is the highest ionospheric region

B-007-02-09 (2)

What is the main reason the 160, 80 and 40 metre amateur bands tend to be useful only for short-distance communications during daylight hours?

Because of auroral propagation

Because of D-region absorption

Because of magnetic flux

Because of a lack of activity

B-007-02-10 (4)

During the day, one of the ionospheric layers splits into two parts called:

D1 & D2

E1 & E2

A & B

F1 & F2

B-007-02-11 (2)

The position of the E layer in the ionosphere is:

below the D layer

below the F layer

sporadic

above the F layer

B-007-03-01 (3)

What is a skip zone?

An area which is too far away for ground-wave or sky-wave propagation

An area covered by sky-wave propagation

An area which is too far away for ground-wave propagation, but too close for sky-wave propagation

An area covered by ground-wave propagation

B-007-03-02 (3)

What is the maximum distance along the earth's surface that is normally covered in one hop using the F2 region?

None; the F2 region does not support radio-wave propagation

2160 km (1200 miles)

4500km (2500 miles)

325 km (180 miles)

B-007-03-03 (1)

What is the maximum distance along the earth's surface that is normally covered in one hop using the E region?

2160 km (1200 miles)

325 km (180 miles)

4500 km (2500 miles)

None; the E region does not support radio-wave propagation

B-007-03-04 (3)

Skip zone is:

a zone of silence caused by lost sky waves

a zone between any two refracted waves

a zone between the end of the ground wave and the point where the first refracted wave returns to earth

a zone between the antenna and the return of the first refracted wave

B-007-03-05 (3)

The distance to Europe from your location is approximately 5000 km. What sort of propagation is the most likely to be involved?
sporadic "E"
back scatter
multihop
tropospheric scatter

B-007-03-06 (4)

For radio signals, the skip distance is determined by the:
power fed to the final
angle of radiation
type of transmitting antenna used
height of the ionosphere and the angle of radiation

B-007-03-07 (3)

The distance from the transmitter to the nearest point where the sky wave returns to the earth is called the:
skip zone
angle of radiation
skip distance
maximum usable frequency

B-007-03-08 (1)

Skip distance is the:
the minimum distance reached by a signal after one reflection by the ionosphere
the maximum distance reached by a signal after one reflection by the ionosphere
the minimum distance reached by a ground-wave signal
the maximum distance a signal will travel by both a ground wave and reflected wave

B-007-03-09 (1)

Skip distance is a term associated with signals from the ionosphere. Skip effects are due to:
reflection and refraction from the ionosphere
selective fading of local signals
high gain antennas being used
local cloud cover

B-007-03-10 (3)

The skip distance of a sky wave will be greatest when the:
polarization is vertical
ionosphere is most densely ionized
angle between ground and radiation is smallest
signal given out is strongest

B-007-03-11 (3)

If the height of the reflecting layer of the ionosphere increases, the skip distance of a high frequency (HF) transmission:
stays the same
varies regularly
becomes greater
decreases

B-007-04-01 (1)

What effect does the D region of the ionosphere have on lower frequency HF signals in the daytime?
It absorbs the signals
It bends the radio waves out into space
It refracts the radio waves back to earth
It has little or no effect on 80-metre radio waves

B-007-04-02 (2)

What causes the ionosphere to absorb radio waves?
The presence of ionized clouds in the E region
The ionization of the D region
The splitting of the F region
The weather below the ionosphere

B-007-04-03 (1)

Two or more parts of the radio wave follow different paths during propagation and this may result in phase differences at the receiver. This "change" at the receiver is called:
fading
baffling
absorption
skip

B-007-04-04 (4)

A change or variation in signal strength at the antenna, caused by differences in path lengths, is called:
absorption
fluctuation
path loss
fading

B-007-04-05 (3)

When a transmitted radio signal reaches a station by a one-hop and two-hop skip path, small changes in the ionosphere can cause:
consistent fading of received signal
consistently stronger signals
variations in signal strength
a change in the ground-wave signal

B-007-04-06 (2)

The usual effect of ionospheric storms is to:
produce extreme weather changes
cause a fade-out of sky-wave signals
prevent communications by ground wave
increase the maximum usable frequency

B-007-04-07 (1)

On the VHF and UHF bands, polarization of the receiving antenna is very important in relation to the transmitting antenna, yet on HF bands it is relatively unimportant. Why is that so?

The ionosphere can change the polarization of the signal from moment to moment

The ground wave and the sky wave continually shift the polarization
Anomalies in the earth's magnetic field produce a profound effect on HF polarization
Greater selectivity is possible with HF receivers making changes in polarization redundant

B-007-04-08 (1)

What causes selective fading?
Phase differences between radio wave components of the same transmission, as experienced at the receiving station
Small changes in beam heading at the receiving station
Time differences between the receiving and transmitting stations
Large changes in the height of the ionosphere at the receiving station ordinarily occurring shortly before sunrise and sunset

B-007-04-09 (2)

How does the bandwidth of a transmitted signal affect selective fading?
It is the same for both wide and narrow bandwidths
It is more pronounced at wide bandwidths
Only the receiver bandwidth determines the selective fading effect
It is more pronounced at narrow bandwidths

B-007-04-10 (1)

Polarization change often takes place on radio waves that are propagated over long distances. Which of these does not cause polarization change?

Parabolic interaction

Reflections

Passage through magnetic fields
(Faraday rotation)

Refractions

B-007-04-11 (1)

Reflection of a SSB transmission from the ionosphere causes:

little or no phase-shift distortion

phase-shift distortion

signal cancellation at the receiver

a high-pitch squeal at the receiver

B-007-05-01 (1)

How do sunspots change the ionization of the atmosphere?

The more sunspots there are, the greater the ionization

The more sunspots there are, the less the ionization

Unless there are sunspots, the ionization is zero

They have no effect

B-007-05-02 (3)

How long is an average sunspot cycle?

17 years

5 years

11 years

7 years

B-007-05-03 (3)

What is solar flux?

A measure of the tilt of the earth's ionosphere on the side toward the sun

The number of sunspots on the side of the sun facing the earth

The radio energy emitted by the sun

The density of the sun's magnetic field

B-007-05-04 (3)

What is the solar-flux index?

Another name for the American sunspot number

A measure of solar activity that compares daily readings with results from the last six months

A measure of solar activity that is taken at a specific frequency

A measure of solar activity that is taken annually

B-007-05-05 (3)

What influences all radiocommunication beyond ground-wave or line-of-sight ranges?

The F2 region of the ionosphere

The F1 region of the ionosphere

Solar activity

Lunar tidal effects

B-007-05-06 (4)

Which two types of radiation from the sun influence propagation?

Subaudible and audio-frequency emissions

Polar region and equatorial emissions

Infra-red and gamma-ray emissions

Electromagnetic and particle emissions

B-007-05-07 (1)

When sunspot numbers are high, how is the ionosphere affected?

Frequencies up to 40 MHz or higher are normally usable for long-distance communication

High frequency radio signals are absorbed

Frequencies up to 100 MHz or higher are normally usable for long-distance communication

High frequency radio signals become weak and distorted

B-007-05-08 (4)

All communication frequencies throughout the spectrum are affected in varying degrees by the:
ionosphere
aurora borealis
atmospheric conditions
sun

B-007-05-09 (1)

Average duration of a solar cycle is:
11 years
3 years
6 years
1 year

B-007-05-10 (1)

The ability of the ionosphere to reflect high frequency radio signals depends on:
the amount of solar radiation
the power of the transmitted signal
the receiver sensitivity
upper atmosphere weather conditions

B-007-05-11 (1)

Propagation cycles have a period of approximately 11:
years
months
days
centuries

B-007-06-01 (1)

What happens to signals higher in frequency than the critical frequency?
They pass through the ionosphere
They are absorbed by the ionosphere
Their frequency is changed by the ionosphere to be below the maximum usable frequency
They are reflected back to their source

B-007-06-02 (1)

What causes the maximum usable frequency to vary?
The amount of radiation received from the sun, mainly ultraviolet
The temperature of the ionosphere
The speed of the winds in the upper atmosphere
The type of weather just below the ionosphere

B-007-06-03 (4)

What does maximum usable frequency mean?
The lowest frequency signal that will reach its intended destination
The highest frequency signal that is most absorbed by the ionosphere
The lowest frequency signal that is most absorbed by the ionosphere
The highest frequency signal that will reach its intended destination

B-007-06-04 (1)

What can be done at an amateur station to continue HF communications during a sudden ionospheric disturbance?
Try a higher frequency
Try the other sideband
Try a different antenna polarization
Try a different frequency shift

B-007-06-05 (1)

What is one way to determine if the maximum usable frequency (MUF) is high enough to support 28 MHz propagation between your station and western Europe?
Listen for signals on the 10-metre beacon frequency
Listen for signals on the 20-metre beacon frequency
Listen for signals on the 39-metre broadcast frequency
Listen for WWVH time signals on 20 MHz

B-007-06-06 (3)

What usually happens to radio waves with frequencies below the maximum usable frequency (MUF) when they are sent into the ionosphere?

They are changed to a frequency above the MUF

They are completely absorbed by the ionosphere

They are bent back to the earth

They pass through the ionosphere

B-007-06-07 (3)

At what point in the solar cycle does the 20-metre band usually support worldwide propagation during daylight hours?

Only at the minimum point of the solar cycle

Only at the maximum point of the solar cycle

At any point in the solar cycle

At the summer solstice

B-007-06-08 (2)

If we transmit a signal, the frequency of which is so high we no longer receive a reflection from the ionosphere, the signal frequency is above the:

skip distance

maximum usable frequency

speed of light

sunspot frequency

B-007-06-09 (1)

Communication on the 80 metre band is generally most difficult during:

daytime in summer

evening in winter

evening in summer

daytime in winter

B-007-06-10 (3)

The optimum working frequency provides the best long range HF communication. Compared with the maximum usable frequency (MUF), it is usually:

double the MUF

half the MUF

slightly lower

slightly higher

B-007-06-11 (1)

During summer daytime, which bands are the most difficult for communications beyond ground wave?

160 and 80 metres

40 metres

30 metres

20 metres

B-007-07-01 (3)

Which ionospheric region most affects sky-wave propagation on the 6 metre band?

The F2 region

The F1 region

The E region

The D region

B-007-07-02 (4)

What effect does tropospheric bending have on 2-metre radio waves?

It causes them to travel shorter distances

It garbles the signal

It reverses the sideband of the signal

It lets you contact stations farther away

B-007-07-03 (3)

What causes tropospheric ducting of radio waves?

Lightning between the transmitting and receiving stations

An aurora to the north

A temperature inversion

A very low pressure area

B-007-07-04 (3)

That portion of the radiation kept close to the earth's surface due to bending in the atmosphere is called the:

inverted wave
ground wave
tropospheric wave
ionospheric wave

B-007-07-05 (1)

What is a sporadic-E condition?

Patches of dense ionization at E-region height

Partial tropospheric ducting at E-region height

Variations in E-region height caused by sunspot variations

A brief decrease in VHF signals caused by sunspot variations

B-007-07-06 (3)

On which amateur frequency band is the extended-distance propagation effect of sporadic-E most often observed?

160 metres
20 metres
6 metres
2 metres

B-007-07-07 (2)

In the northern hemisphere, in which direction should a directional antenna be pointed to take maximum advantage of auroral propagation?

East
North
West
South

B-007-07-08 (2)

Where in the ionosphere does auroral activity occur?

At F-region height
At E-region height
In the equatorial band
At D-region height

B-007-07-09 (3)

Which emission modes are best for auroral propagation?

RTTY and AM
FM and CW
CW and SSB
SSB and FM

B-007-07-10 (2)

Excluding enhanced propagation modes, what is the approximate range of normal VHF tropospheric propagation?

2400 km (1500 miles)
800 km (500 miles)
3200 km (2000 miles)
1600 km (1000 miles)

B-007-07-11 (2)

What effect is responsible for propagating a VHF signal over 800 km (500 miles)?

Faraday rotation
Tropospheric ducting
D-region absorption
Moon bounce

B-007-08-01 (4)

What kind of propagation would best be used by two stations within each other's skip zone on a certain frequency?

Scatter-mode
Sky-wave
Ducting
Ground-wave

B-007-08-02 (3)

If you receive a weak, distorted signal from a distance, and close to the maximum usable frequency, what type of propagation is probably occurring?

Ground-wave
Line-of-sight
Scatter
Ducting

B-007-08-03 (2)

What is a characteristic of HF scatter signals?

Reversed modulation

A wavering sound

Reversed sidebands

High intelligibility

B-007-08-04 (1)

What makes HF scatter signals often sound distorted?

Energy scattered into the skip zone through several radio-wave paths

Auroral activity and changes in the earth's magnetic field

Propagation through ground waves that absorb much of the signal

The state of the E-region at the point of refraction

B-007-08-05 (2)

Why are HF scatter signals usually weak?

Propagation through ground waves absorbs most of the signal energy

Only a small part of the signal energy is scattered into the skip zone

The F region of the ionosphere absorbs most of the signal energy

Auroral activity absorbs most of the signal energy

B-007-08-06 (3)

What type of radio-wave propagation allows a signal to be detected at a distance too far for ground-wave propagation but too near for normal sky-wave propagation?

Short-path skip

Sporadic-E skip

Scatter

Ground wave

B-007-08-07 (4)

When does scatter propagation on the HF bands most often occur?

When the sunspot cycle is at a minimum and D-region absorption is high

At night

When the F1 and F2 regions are combined

When communicating on frequencies above the maximum usable frequency (MUF)

B-007-08-08 (4)

Which of the following IS NOT a scatter mode?

Meteor scatter

Tropospheric scatter

Ionospheric scatter

Absorption scatter

B-007-08-09 (2)

Meteor scatter is most effective on what band?

40 metres

6 metres

15 metres

160 metres

B-007-08-10 (3)

Which of the following IS NOT a scatter mode?

Side scatter

Back scatter

Inverted scatter

Forward scatter

B-007-08-11 (1)

In which frequency range is meteor scatter most effective for extended-range communication?

30 - 100 MHz

10 - 30 MHz

3 - 10 MHz

100 - 300 MHz

B-008-01-01 (3)

What is meant by receiver overload?

Interference caused by turning the volume up too high

Too much current from the power supply

Interference caused by strong signals from a nearby transmitter

Too much voltage from the power supply

B-008-01-02 (3)

What is one way to tell if radio frequency interference to a receiver is caused by front-end overload?

If grounding the receiver makes the problem worse

If connecting a low pass filter to the receiver greatly cuts down the interference

If the interference is about the same no matter what frequency is used for the transmitter

If connecting a low pass filter to the transmitter greatly cuts down the interference

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 harmonic 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

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