

Operating a High Frequency (HF) Station

Dave Lambert (VE3KGK)

Introduction of Facilitator

- David Lambert VE3KGG
- Strange Accent?

A Short Survey

- How many of you plan on operating HF?
- How many of you plan on using Single Sideband (SSB)
- How many of you intend to learn and use Morse Code?

Good Operating

This applies both on CW and on Phone

- How does one become a good operator?
- Ham Radio Jargon.
- Q-codes.
- Q-codes are used in both CW and Phone contacts.

Question from the Exam bank

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

- A. QRL?
- B. QRV?
- C. QRU?
- D. QRZ?

The answer is A – QRL.

B 002-007-003

Phonetic Alphabet

- Remember you may be in contact with someone whose Native Language is **NOT** English.
- Use the standard phonetics.
- Is it OK to vary the standard phonetic alphabet?
- Unusual name or place.
- Pronouncing numbers.

Question from the Exam Bank

What is the standard international phonetic for the letter “R”?

- A. Roger
- B. Radio
- C. Romania
- D. Romeo

The answer is (D) – ROMEO

B-000-002-011

Operating on the High Frequency Bands

- 6, 10, 12, 15, 17, 20, 40, 80, 160 metre bands.
- Sometimes a band is “OPEN”, but not always.
- Band plans CW vs Phone.
- Frequencies are not assigned.
- Interference.
- The ARRL and RAC band plans.

Question from the Exam Bank

What is a Band Plan?

- A. A Plan or operating schedules within an Amateur Band published by Industry Canada.
- B. A plan devised by a radio club to best use a frequency band during a contest.
- C. A guideline for deviating from Amateur Band frequency allocations.
- D. A guideline for using different operating modes within an Amateur Band.

The answer is (D)

B-002-004-010

US Amateur Radio Bands

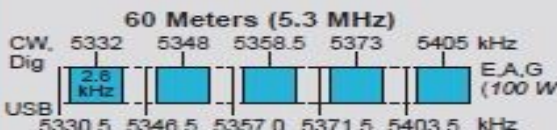
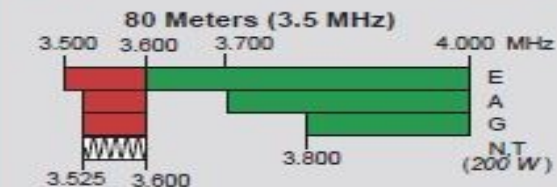
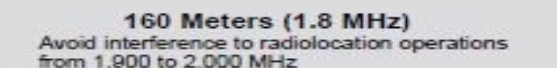
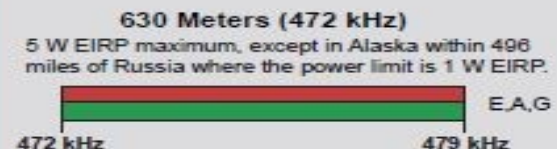
US Amateur Radio Bands

US AMATEUR POWER LIMITS — FCC 97.313 An amateur station must use the minimum transmitter power necessary to carry out the desired communications. (b) No station may transmit with a transmitter power exceeding 1.5 kW PEP.

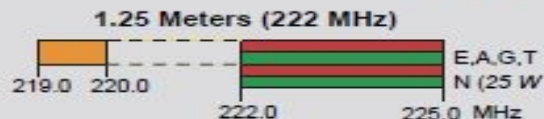
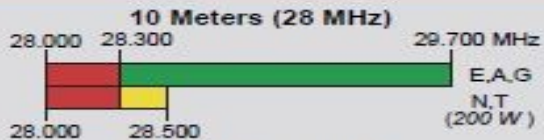
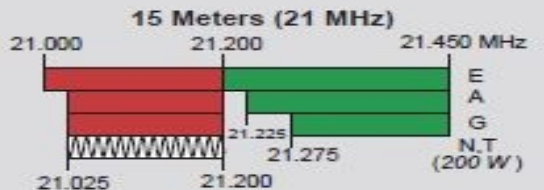
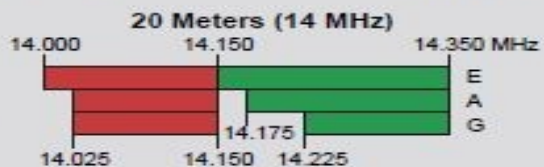
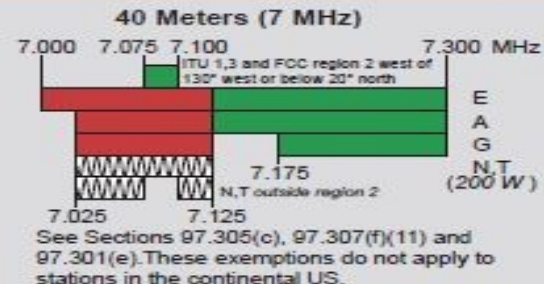


ARRL The national association for AMATEUR RADIO®

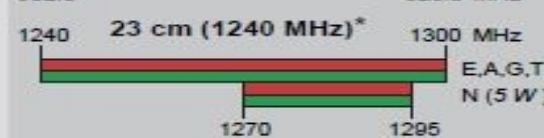
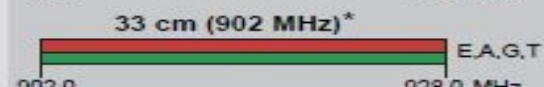
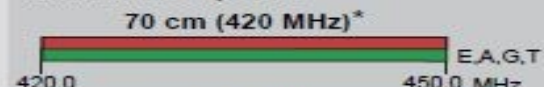
Amateurs wishing to operate on either 2,200 or 630 meters must first register with the Utilities Technology Council online at <https://utc.org/plc-database-amateur-notification-process/>. You need only register once for each band.



General, Advanced, and Amateur Extra licensees may operate on these five channels on a secondary basis with a maximum effective radiated power (ERP) of 100 W PEP relative to a half-wave dipole. Permitted operating modes include upper sideband voice (USB), CW, RTTY, PSK31 and other digital modes such as PACTOR III. Only one signal at a time is permitted on any channel.



*Geographical and power restrictions may apply to all bands above 420 MHz. See The ARRL Operating Manual for information about your area.



All licensees except Novices are authorized all modes on the following frequencies:

2300-2310 MHz	10.0-10.5 GHz ±	122.25-123.0 GHz
2390-2450 MHz	24.0-24.25 GHz	134-141 GHz
3300-3500 MHz	47.0-47.2 GHz	241-250 GHz
5650-5925 MHz	76.0-81.0 GHz	All above 275 GHz

± No pulse emissions

KEY

- Note:** CW operation is permitted throughout all amateur bands. MCW is authorized above 50.1 MHz, except for 144.0-144.1 and 219-220 MHz. Test transmissions are authorized above 51 MHz, except for 219-220 MHz.
- = RTTY and data
 - = phone and image
 - ▨ = CW only
 - = SSB phone
 - = USB phone, CW, RTTY, and data
 - = Fixed digital message forwarding systems only
- E = Amateur Extra
A = Advanced
G = General
T = Technician
N = Novice

See ARRL Web at www.arrl.org for detailed band plans.

ARRL We're At Your Service

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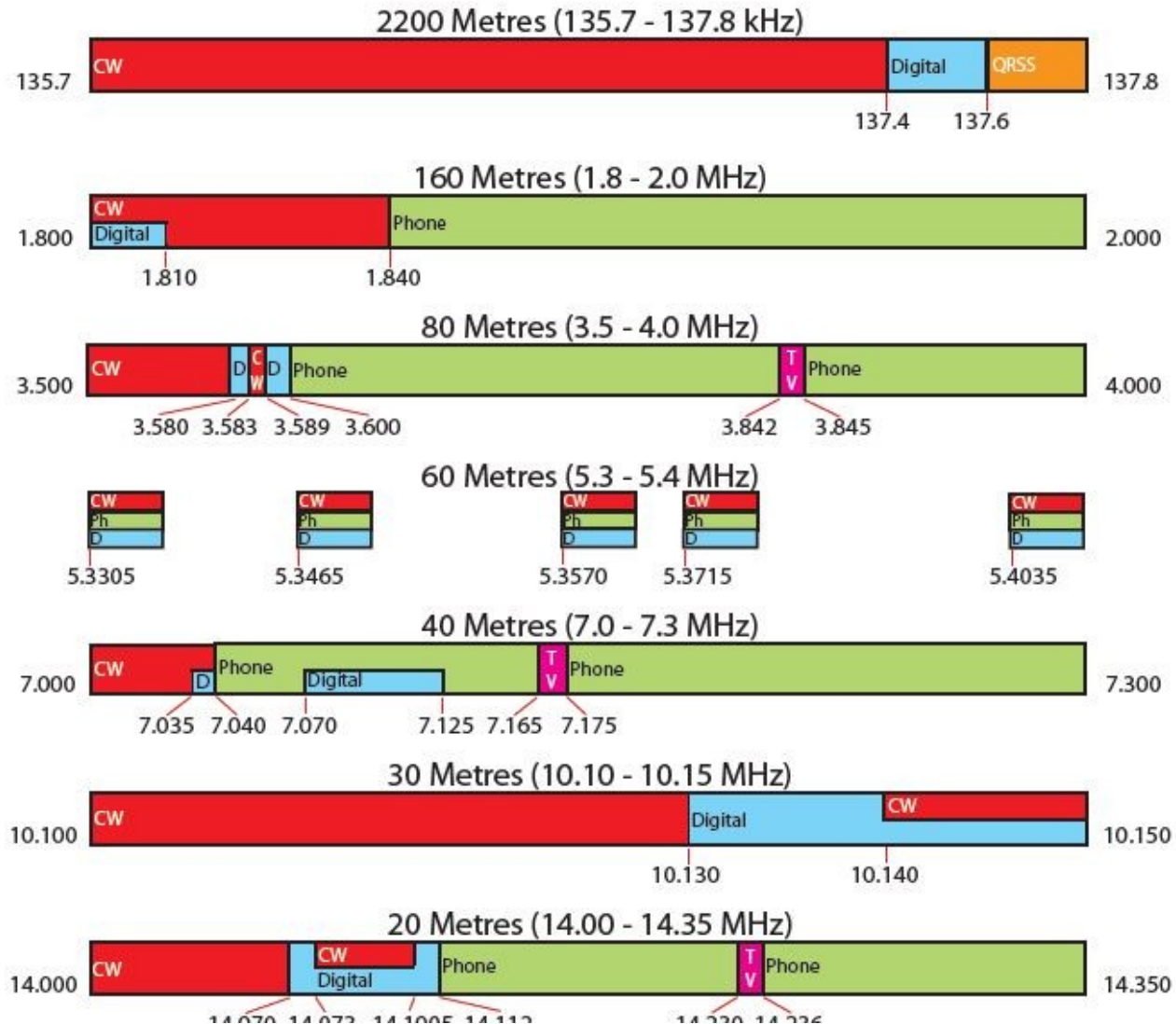
Canadian Amateur Band Plan



Canadian 0 - 30MHz Band Plan

Effective Date:
December 1, 2015

1. This is a simplified version of the official RAC Band Plan. Not all permissible modes/activities are represented.

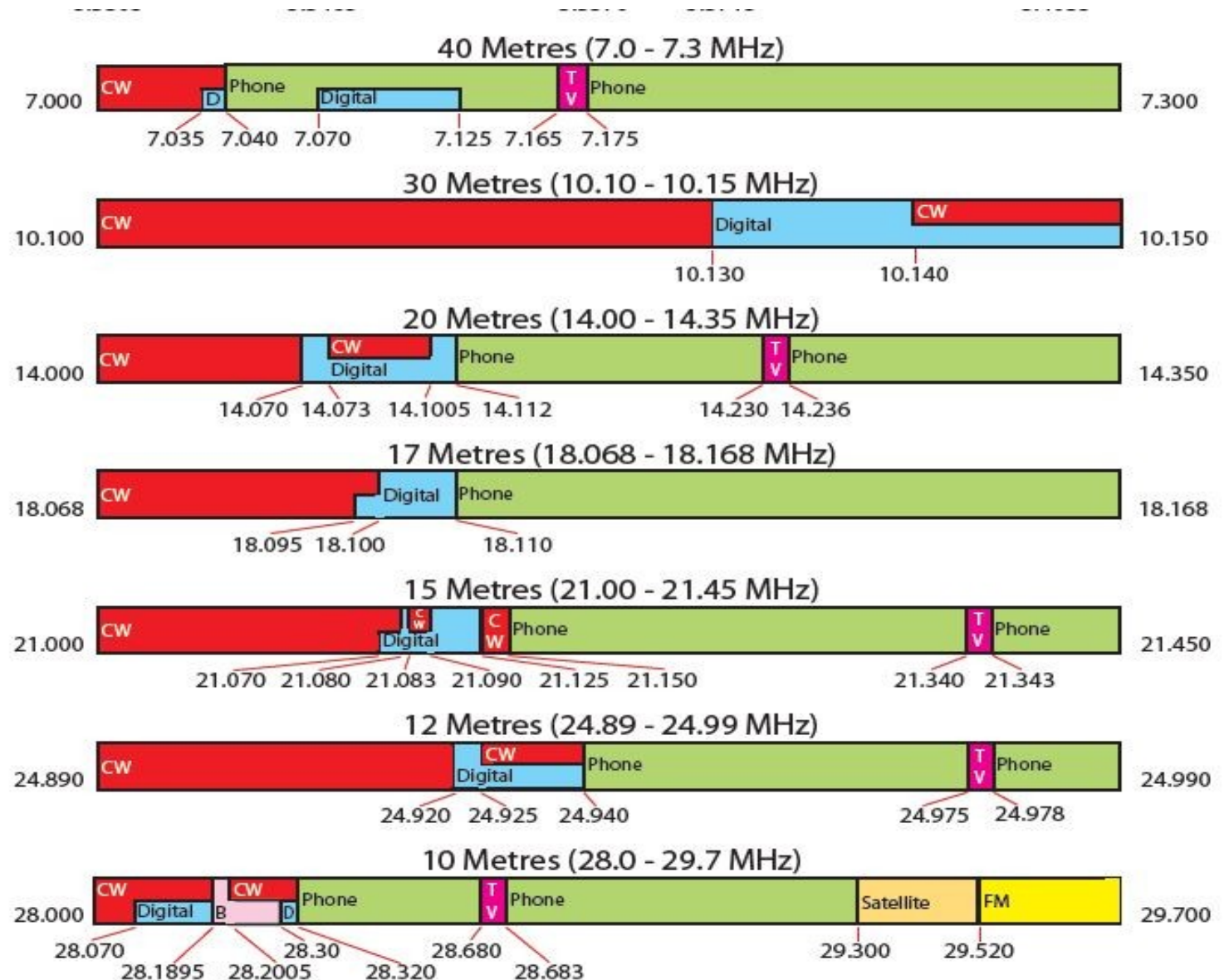


Canadian Amateur Band Plan

Band Plan

Effective Date:
December 1, 2015

1. This is a simplified version of the official RAC Band Plan. Not all permissible modes/activities are represented.
2. LSB is used on 160, 80 and 40m. USB is used on all other bands that permit SSB, including 60m.
3. Consult various online resources for detailed information on what digital modes are used.
4. Maximum bandwidth permitted on 2200m is 100 Hz. Maximum power is 1 Watt EIRP.
5. Refer to the IC and RAC websites for full details before operating on the new 60m channels.
6. Remember not to allow your signal to spill over into adjoining band segments when operating close to the edges. During major weekend contests, activity in certain modes can spill over into other segments. Operators should avoid NCDXF beacons on 14.100, 18.110, 21.150, 24.920 and 28.200 MHz.



CW Operation (Morse Code)

- Why CW?
- CW protocol.
- Listen to several CW contacts before jumping in.
- Know the abbreviations.

Question from the Exam Bank

What is the meaning of the term “73”?

- A. Go ahead.
- B. Best regards.
- C. Long distance.
- D. Love and kisses.

The answer is (B) – Best regards.

B-002-006-008

How to make that FIRST contact?

- Check that your equipment is properly adjusted.
- Tuning. (if necessary)
- Listen, listen, listen... and then listen some more.
- Is there anyone using the frequency you have selected?
- Calling CQ or listening for someone calling?
- On CW – 3X CQ then “DE” then 3X your call followed by “K”.
- What happens if you do not have the call correctly?

Question from the Exam Bank

What should you do before you transmit on any frequency?

- A. Listen to make sure someone will be able to hear you.
- B. Listen to make sure others are not using the frequency.
- C. Check your antenna for resonance at the selected frequency.
- D. Make sure the SWR on your antenna transmission line is high enough.

The answer is (B).

B-002-004-001

Phone operation

- Overcoming “MIC FRIGHT”!!!!
- Know what you are going to do before making the contact.
- Expect noise, atmospherics, fading signals, adjacent signals.
- Making the contact by calling “CQ” or answering a “CQ”.
- Make sure the frequency is not in use if you call “CQ”.
- Who sets the discussion level.
- Identifying.
- Use of “over”.

Question from the Exam Bank

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?

- A. Approximately 10 kHz.
- B. Approximately 3 kHz.
- C. 150 to 500 Hz.
- D. Approximately 6 kHz.

The answer is (B).

B-002-004-009

QSL-ing

- A QSL card is the ultimate courtesy after a QSO.
- QSL cards – What information is needed?
- How to QSL.
- How to show QSL cards?

Samples of QSL cards

	Confirming QSO with	Date	UTC	MHz	RST	Mode
WA5HDD	VE3K GK	7/15/18	1551	14.265	5/9	SSB

The Rare Ones of New Orleans
Commemorating the 300th Anniversary of the
Founding of the City of New Orleans



The bend in the Mighty Mississippi Where it all started In 1718

Samples of QSL cards



Samples of QSL cards

CONFIRMING OUR QSO

DE **9G1LT**
Dove

RICK THAKE
P.O. BOX 296
ACCRA
GHANA

RSGB

GARS

TO RADIO	DATE	TIME GMT	MODE	BAND MHZ	R	S	T
VE3K6K	13-4-79	16-15	2xSSB	28	5	5	1

QSL 73'S *Rick* TNX

Question from the Exam Bank

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

- A. A packet message.
- B. A signed postcard listing contact date, time, frequency, mode and power, called a “QSL” card.
- C. A two-page letter containing a photograph of the operator.
- D. A radiogram sent over the CW traffic net.

The answer is (B).

B-002-009-005

Logging

- No longer required but still recommended.
- Logging programs, some free, some you can purchase.
- I use N3JFP's logging program.

Nets

- Many nets on all bands.
- Many have been around for years.
- Show courtesy.
- If requested to allow a clear frequency for net operation, do so but move at least 3 to 5 kHz away.

Question from the Exam Bank

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

- A. As a courtesy to the Net, move to another frequency.
- B. Increase your power output to ensure that all Net participants can hear you.
- C. Transmit as long as possible on the frequency so that no other stations may use it.
- D. Turn off your radio.

The answer is (A).

B-002-004-007

UTC / GMT

- Logging in UTC (AKA 'Zulu') is the standard way of logging time and date.
- When using UTC, the date changes in Ontario by either 5 hours (EST) or 4 hours (DST).
- Time Zones will help when trying to work far away stations.

Maps

- Azimuthal maps are useful if you have a beam (directional) antenna.

Example of a log

DATE 2003	FREQ.	MODE	POWER	TIME	STATION WORKED	REPORT		TIME OFF	QTH	COMMENTS NAME	QSL	
						SENT	REC'D				S	R
OCT 28	14188	SSB	100	1639	VQ9JL	S/A	S/A	1639		CITAGOS IS.		
	14193			2110	4X/K8OQL	S/B	S/B	2110		JERRY		
	14182			2115	R4/DK1MM	S/A	S/A	2115		STEFAN GIEHLE SILBERGASSE 6 81143 BLAUBUERGEN		
	14228			2133	JT9GKA	S/A	S/A	2133				
OCT 29	14208	SSB	100	1339	EXØM	S/A	S/A	1339		SR-17 CR 04		✓
	14211			1902	YT9X	S/A	S/A	1902		BOSNIA HERZOGOVINA 15/04		✓
NOV 10	14200			1649	3B9FR	S/B	S/B	1649		RODRIGUES IS.		
	14187			2159	CT1BOL	S/B	S/B	2203		GEORGE PORTO		
	14247			2236	6Y5CI	S/A	S/A	2236				
DEC 20	14272				W6S					SANTA WITH KENNEDY		
					EXØM					2006		
JAN 22	14172			2353	HK3AK	S/A	S/S	2352		JOHN BOGOTA		
JAN 25	14257			2203	KG4WV	S/A	S/A	2203		GUANTANAMO		
	14195			2327	CEØZ	S/A	S/A	2327		JUAN FERNANDEZ 14200		
	14210			2335	W8GEX/KP2	S/A	S/A	2335				
FEB 16	21295	SSB	100W	1604	3Y0X	S/A	S/A	1604		PETER I IS. 21305.5		✓
	14174			2020	CO3VK	S/B	S/A	2021		JOSE		
FEB 24	14224			0028	YN2N	S/A	S/A	0029		OCTAVIO NICARAGUA	IN SPANISH	
	14205			1552	102ME1	S/A	S/A	1552		ANTARCTICA W/E		
	14208			1557	9A150NT	S/A	S/A	1557		IVO DUBRONYK	9A6AA	
	14223			1600	352BB	S/B	S/A	1604		ZIVKO SLOVENIA	BURO	
	14195			2202	TZ9A	S/A	S/A	2202		CHRIS MALI		
FEB 25	14226			2234	HR2/KE4CD	S/A	S/A	2236		LANE	QSL N4AA	
FEB 26	14195			2318	PY3PA	S/A	S/A	2318		PAOLO		
	14279			2328	NØXMS	S/A	S/S	2346		SCOTT DALLAS TX.		

Question from the Exam Bank

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

- A. Greenwich, England.
- B. Geneva, Switzerland.
- C. Ottawa, Canada.
- D. Newington, Connecticut.

The answer is (A).

B-002-009-009

Question from the Exam Bank

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

- A. Mercator.
- B. Polar projection.
- C. Topographical.
- D. Azimuthal.

The answer is (D).

B-002-009-003

Spotting Programs

- DX Summit or DX Watch both available by searching Google.

Emergency Communications

- DISTRESS means Emergency situations.
- Mayday 3X on Phone.
- SOS using Morse code.

- URGENCY – used where safety of person, vehicle, aircraft, vessel or residence is threatened.
- PAN-PAN repeated three times.

- SECURITY – lowest level of emergency.
- Used for warnings, mostly in Maritime situations.

Question from the Exam Bank

When may you use your Amateur Radio station to transmit an “SOS” or “MAYDAY”?

- A. In a life-threatening distress situation.
- B. Never.
- C. Only at specific times. (at 15 and 30 minutes after the hour)
- D. Only in case of a severe weather watch.

The answer is (A)

B-002-008-001

CFARS and MARS

CFARS: Canadian Forces Affiliate Radio System

- A program sponsored by National Defence HQ military, club and licensed ham radio stations and operators to participate in providing auxiliary communications locally, nationally and internationally to assist existing military communications. Basically, to pass traffic.

MARS: Military Auxiliary Radio System

- This is the US version where the civilian auxiliary help is from licensed ham radio operators interested in assisting with communications locally, nationally and internationally.

Many radios do not have the capabilities on these frequencies without modification.

Awards

- WAC (5) – Worked all continents.
- WAS (50) – Worked all states.
- DXCC (100) – Worked 100 countries.
- IOTA (1200) – Islands on the air.
- Special events.
- Certificates.
- Contesting.

Summary of HF Operating

- If you choose to get into HF operating, you will find it is a lot of fun and very rewarding.
- You will meet all sorts of people and even make friends.
- To me, this is the facet of the hobby that grabbed me and it still does 40 plus years later.
- If you want further information or help, it is available if you just ask.
- Thank you for your kind attention today.

- 73.