RIC-1 — Guide for Examiners Accredited to Conduct Examinations for Amateur Radio Operator Certificates

Issue 8

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▼ Preface

Radiocommunication Information Circulars (RICs) are issued to provide guidance of those engaged in radiocommunications in Canada. The information contained in these circulars is subject to change without notice. Interested persons should therefore consult the nearest Innovation, Science and Economic Development Canada (ISED) <u>District Office</u> for additional details. While every reasonable effort has been made to ensure the information is accurate, no warranty is expressed or implied.

This RIC has been updated to include subsections <u>7.2.1 (Procedures for Virtual Exams)</u> and <u>8.1.1 (Receiving and Sending Tests for Virtual Morse Code Exams)</u>. They outline the procedures candidates must follow when taking a Basic, Advanced, or Morse code virtual amateur radio exam. Additionally, <u>section 6.4</u> and the new <u>subsection 8.1.2</u> outline the accessibility options available to candidates taking the Basic/Advanced and Morse code exams, respectively. Finally, provincial and territorial restrictions for candidates and examiners have been removed.

Comments and suggestions may be directed to the following address:

Innovation, Science and Economic Development Canada
Spectrum Management Operations Branch
6th Floor
235 Queen Street
Ottawa ON K1A 0H5

Attention: Radio Licensing Policy

Email: <u>spectrumoperations-operationsduspectre@ised-isde.gc.ca</u>

All ISED publications related to spectrum management and telecommunications are available on the <u>Spectrum Management and Telecommunications</u> website.

▼ 1. Introduction

Accrediting examiners to conduct Amateur Radio Operator Certificate examinations aligns with Innovation, Science and Economic Development Canada's (ISED) policy to enhance the delivery of the various departmental programs offered to the general public. This policy provides improved access to examiners for candidates wishing to obtain an Amateur Radio Operator Certificate.

▼ 2. Purpose

This circular outlines the policies and procedures for examiners who conduct Amateur Radio Operator Certificate examinations on behalf of ISED.

▼ 3. Accreditation

This section explains who is eligible to be accredited to administer the qualification examinations for Amateur Radio Operator certificates and outlines the compulsory requirements for accreditation.

3.1 Eligibility for accreditation

ISED may accredit any recognized Canadian educational institution, amateur radio club, or individual to administer the qualification examinations for Amateur Radio Operator certificates. In order to retain their accreditation, institutions and clubs must provide a qualified instructor who meets the requirements of section 3.2 to administer the qualification examinations.

3.2 Compulsory requirements

All individuals who administer qualification examinations must hold an Amateur Radio Operator Certificate with Basic, Morse code (5 wpm) and Advanced qualifications, and be 18 years of age or older. For further details regarding Amateur Radio Operator certificates, refer to Radiocommunication Information Circular RIC-3, <u>Information on the Amateur Radio Service</u>.

Accredited examiners must be able to access the <u>Amateur radio operator certificate services</u> website. This is a requirement of the accreditation process since accredited examiners must be able to create

official exams using the ISED exam generator. Examiners should consult ISED's <u>Spectrum Management and Telecommunications</u> website for the most recent regulatory, procedural and policy information.

3.3 Accrediting educational institutions

The educational institution should offer training courses related to amateur radio, including electronic theory, regulations pertaining to amateur service, Morse code (where applicable) and practical station operations. The application for accreditation should be co-signed by the school principal, dean or president. Accredited educational institutions may nominate any suitably qualified staff member who meets the requirements outlined in section 3.2 to administer the qualification examinations.

Accredited examiners for educational institutions may determine prerequisite or course requirements before an examination can be taken.

3.4 Accrediting amateur radio clubs

Amateur radio clubs with members actively involved in providing training courses for the Amateur Radio Operator Certificate qualification examinations may nominate one or more individuals as accredited examiners. Clubs that nominate more than two examiners may be required to justify their request.

The application for accreditation should be co-signed by the club's president or vice-president. Amateur radio club examiners are required to agree to provide examination services to non-club members.

3.5 Accrediting individuals (sponsorship)

Individuals who wish to become accredited examiners and meet all the requirements in section 3.2, and who live in areas where there are no local amateur radio clubs or educational institutions as defined in sections 3.3 or 3.4, may be sponsored by the Radio Amateurs of Canada (RAC). ISED will consider applications supported in writing by the RAC Regional Director for the region.

The expected number of examinations to be conducted, relative to the number of accredited examiners in any particular service area will be taken into consideration before additional examiners are accredited.

▼ 4. Accreditation procedures

This section outlines the procedures to become accredited to administer the qualification examinations for Amateur Radio Operator certificates.

4.1 Application for accreditation

Educational institutions, amateur radio clubs and individuals may request accreditation through the Amateur radio operator certificate services website or by email to the Amateur Radio Service Centre (ARSC) at spectrumamateur-spectreamateur@ised-isde.gc.ca. When applying online, a signed Accredited Amateur Examiner Application Form (ISED-ISDE3841) must be attached to the request.

Alternatively, educational institutions, amateur radio clubs and individuals wishing to become accredited to conduct amateur examinations may submit the ISED-ISDE3841 form to the following address:

Innovation, Science and Economic Development Canada

Amateur Radio Service Centre

2 Queen Street East

Sault Ste. Marie ON P6A 1Y3

Telephone: 1-888-780-3333 (toll-free)

Fax: 1-705-941-4607

Email: spectrumamateur-spectreamateur@ised-isde.gc.ca

The application includes a declaration to demonstrate the applicant's commitment to observe all departmental procedures in the administration of amateur examinations.

4.2 Letter of accreditation

Accreditation will be granted in the form of a letter of accreditation issued by ISED. Unless otherwise specified, the accreditation will be valid for three (3) years.

ISED reserves the right to cancel the accreditation of examiners at any time.

4.3 Briefing

The ARSC processes applications for accreditation. District offices will be consulted for initial appointments and are responsible for conducting initial briefings for examiners. Follow-up briefings will be conducted on an exceptional basis. Accredited examiners must be familiar with the examination content and format, how to mark the exam, and how to report results.

4.4 Renewal

To renew their accreditation, examiners must resubmit the ISED-ISDE3841 form using the ISED contact information provided in section 4.1. This procedure is required to confirm continuing support from sponsoring organizations. In some cases, a renewal briefing may be required if the individual has not been actively conducting examinations for a period during which many changes have occurred or a period of three (3) years has passed since the examiner last conducted examinations and submitted results to the ARSC.

▼ 5. Accredited examiners

This section describes the roles and responsibilities of accredited examiners.

5.1 Conduct and duties

Examiners:

- are expected to conduct examinations with integrity and in a credible manner;
- must not conduct examinations for immediate family members;
- must advise the ARSC of any change in their mailing address, telephone number or email address;
- may not exempt a candidate from the requirement for an examination; and
- may provide accommodated testing when a candidate identifies as having a disability that hinders their ability to take an exam.

There are no provincial or territorial restrictions for conducting virtual or in-person examinations. The examiner and candidate must be located in Canada at the time of the examination.

5.2 Examination documentation and procedures

Candidate application forms and examination materials are available on the Amateur radio operator certificate services website.

New exams must be generated for every examination session in order to ensure the questions are current and free from any errors that have been corrected in the database. ISED's Amateur radio exam generator must be used for this purpose.

To ensure examination integrity, examiners must store examination material in a secure location immediately after the completion of an examination.

The examiner must inform the candidate of examination results once the completed examination has been marked.

The examiner must submit the examination results of the successful candidates online or to the ARSC within ten (10) working days of the examination.

ISED will issue the Amateur Radio Operator Certificate, with appropriate qualifications, when examination results are received from the accredited examiner.

Examiners must preserve the confidentiality of information provided by candidates, such as birth dates and telephone numbers.

All completed written examinations and Morse code test material are to be retained by examiners for a period of at least three (3) years. If required, this material must be made available for ISED audits or other purposes. Disposal of aged examination material must be handled in a manner that will ensure confidentiality.

All examination material and records must be returned to the ARSC if the examiner resigns or if accreditation is withdrawn or not renewed.

5.3 Examination fees

As of December 16, 2020, ISED no longer charges fees for examinations conducted by ISED personnel. However, accredited examiners may charge an examination fee to candidates to recover the cost of administering an examination. No portion of this fee is remitted to ISED.

▼ 6. Candidate requirements

This section describes the requirements for candidates who wish to take Amateur Radio Operator Certificate examinations.

6.1 Age and nationality

There are no age or nationality restrictions on those who take the examinations.

6.2 Conduct

Candidates must follow the examiner's instructions. Failure to comply with instructions will result in the cancellation of the examination.

6.3 Identification

To prevent fraud, candidates must provide adequate photo identification to the examiner prior to the examination.

6.4 Accessibility Options

Innovation, Science, and Economic Development (ISED) believes that all Canadians should have an equal opportunity to obtain an Amateur Radio Operator Certificate to participate in the Amateur Radio Service. It is our intention that everyone is provided a fair chance of passing the Amateur Radio Operator exam, regardless of their personal circumstances.

The following accessibility options are available to all candidates upon request.

- Exams or parts of the exam may be administered orally.
- Exams may be divided into segments that can then be completed at the candidate's own pace.

To request an accessibility option not listed in this RIC, or if you have any other questions about accommodations or accessibility options, please contact the Amateur Radio Service Centre and advise your accredited examiner.

▼ 7. Written examinations

This section details the requirements and procedures for administering the written examinations for Amateur Radio Operator certificates. For details on administering the Morse code examination, see section 8.

7.1 Requirements

Examination requirements are described in RIC-3.

There are four (4) qualifications associated with Amateur Radio Operator certificates:

- Basic
- Basic with Honours
- Advanced
- Morse code (5 wpm)

A candidate may attempt one or all qualifications at any time, but no certificate will be issued unless the candidate has passed the examination for the Basic Qualification.

Examinations must be based on the question banks for either Basic or Advanced qualifications located on the Amateur radio exam generator webpage.

7.2 Procedures

To ensure candidates are familiar with the examination procedures and conditions, examiners should take a few minutes before the exam to explain the examination process and answer any questions.

Due to the complex nature of the subject matter, candidates must be able to comprehend both the terminology and the technical language used during the examination process without the need for detailed explanations by the examiner.

There is no specified time limit for the examinations. Most examinations are completed within one (1) hour and would normally not take more than two (2) hours to complete. Examiners will use their discretion in ensuring that reasonable time is made available for the examination.

Examinations are closed book. Reference material must not be used during the examination except for the ISED-approved formula and block diagram sheet labelled "Reference Material for Amateur Radio Exam – Basic Qualification" on our Amateur Radio Exam Generator page. The use of calculators is permitted provided that the calculator does not have the capability of storing formulas or text.

7.2.1 Procedures for Virtual Exams

Accredited examiners may conduct examinations virtually. Virtual examinations must adhere to all the same requirements associated with in-person examinations, found in sections 7.1 to 7.4. The following procedures expand on additional requirements that are specific to virtual exams.

Both the accredited examiner and the candidate must use a computer with a functioning camera and microphone and a stable internet connection that can accommodate streaming audio and video. Where possible, a backup video communication method must be established between the candidate and examiner prior to the start of a virtual exam in the event of a disruption while an exam is underway.

Examinations must be face-to-face, one-on-one sessions using two-way video conferencing. Accredited examiners must be able to visually verify the candidate's valid, government-issued photo identification. The candidate must use their camera to show the examiner that there is nothing within reach or within view of the candidate that could affect the integrity of the exam (e.g., reference material or an unauthorized aid). If the accredited examiner feels the integrity of the exam cannot be maintained using the chosen arrangement, they may terminate the exam and/or defer it.

The examiner will e-mail a blank answer sheet to the candidate in advance of the examination. The candidate will print out the blank answer sheet and use it to record their answers during the exam. The examiner will screen share the exam questions and allow the candidate to revisit any of the questions.

The candidate must keep their camera and microphone on at all times during the examination. The examiner will monitor the candidate to ensure the integrity of the examination.

Once the candidate indicates they have completed the examination and had the opportunity to review their results, the candidate will immediately send the examiner an image of their completed answer sheet.

The examiner will mark the examination and review the results with the candidate during the videoconference. If the candidate passes the examination, the examiner will:

- fill out the top section of the answer sheet with the candidate's information;
- complete the online examiner application form;
- show the completed online application form to the candidate;
- request the candidate indicate their concurrence with the application form; and
- submit the virtual exam results via the online examiner user account.

7.3 Pass marks

The pass mark for a written examination is 70%.

However, a pass mark of 80% provides the candidate with additional high frequency (HF) operating privileges (< 30 MHz). This is referred to as "Basic with Honours" or "basic +."

Refer to section 8.7 for information related to Morse code testing and marking.

7.4 Re-examination

A candidate who fails a written test may be retested as often as necessary, at the convenience of both the examiner and the candidate. The examiner must ensure that a different examination is used for each re-examination.

▼ 8. Morse code examinations

This section details the requirements and procedures for administering the Morse code examination.

8.1 Receiving and sending tests

For the receiving test, examiners may send Morse code by hand, cassette tape, or computer-generated code. Timing and length of text must be closely observed.

Examiners may produce their own tests based on the following Morse code specifications.

8.1.1 Receiving and sending tests for virtual Morse code exams

The requirements and procedures found in subsection 7.2.1 apply to virtual Morse code Exams except for receiving and sending tests.

For receiving and sending virtual tests, the examiner and candidate must adhere to the following:

- the examiner must ensure that there is nothing within reach or within view of the candidate that could affect the integrity of the exam (e.g., reference material or an unauthorized aid such as an electronic morse code reader);
- the candidate must have blank writing materials that they will use to transcribe the alphanumeric characters corresponding to the Morse code, during the receiving part of the examination;
- the examiner must have a prepared audio file of a text in Morse code that meets the specifications outlined in section 8.2;
- once the Morse code receiving part of the exam is complete and the candidate has had an opportunity to review and correct their transcription, the candidate must immediately send the examiner an image of the written transcription, electronically;

- for the sending part of the exam, the examiner will monitor the candidate via the video conferencing system to confirm the candidate is sending Morse code in real-time;
- the examiner will copy the text sent by the candidate and mark it according to the standards in section 8.2; and
- the examiner will mark, review, and provide feedback to the candidate on the results of both the sending and receiving parts of the exam during the video conference.

8.1.2 Receiving and sending Morse code for persons requiring accommodations

A candidate may identify as having a disability that limits or prohibits the ability to either send or receive Morse code. In order to test the candidate's knowledge of Morse code, the sending portion of the examination should be conducted by asking the candidate to recite the exam text in Morse code. For the receiving portion of the exam, the examiner should send the required text manually and have the candidate verbalize the characters. The exam should be graded with respect to errors. Code speed cannot be taken into account in these cases.

8.2 Morse code specifications

Candidates for the Morse code (5 wpm) Qualification of the Amateur Radio Operator Certificate are required to:

a. correctly send, by hand, a plain-language text, in international Morse code, for a minimum of three (3) consecutive minutes, at a speed of not less than 5 wpm, using an ordinary radiotelegraph key, a semi-automatic key or an electronic hand key

- in addition to the 26 letters, the text may include figures, punctuation marks and Q signals; and

b. correctly receive, by ear, a plain-language text, in international Morse code, for a minimum of three (3) consecutive minutes, at a speed of not less than 5 wpm, copying legibly by hand, typewriter or word processor

- in addition to the 26 letters, the text may include figures, punctuation marks and Q signals.

A Morse code "word" consists of five characters. The letters A through Z are counted as one (1) character each, and figures and punctuation signs are counted as two (2) characters each.

Morse code tests shall only use letters of the alphabet, numbers, the period, the comma, the question mark, the dash and the fraction bar.

The basic unit in Morse code is the dot. A dash is three dots long. Pauses between character elements are one dot long, pauses between characters are three dots long, and pauses between words are seven dots long.

Morse code shall be sent at a character speed of 12 wpm. It is the length of the spacing between characters and between words that determines the speed of the test. The additional time required for the 5 wpm space sequence is approximately 2.5 times as long at 5 wpm as it is for 12 wpm. Therefore, for the 5 wpm test, the spaces between letters would be approximately 7 dots in length, and the spaces between words approximately 17 dots in length.

To verify the speed of a Morse code sending machine, the word "Paris" sent five times in one minute results in a code speed of 5 wpm.

When the text is sent by the candidate, the speed of the characters is immaterial, as long as the necessary number of characters is sent. That is, at 5 wpm, at least 75 characters are sent in the three (3) minutes allocated. Any characters omitted at the end of the text due to lack of time will count as errors. Accented letters are not to be used during Morse code testing.

8.3 Example of Morse code test

Qualification for Morse code (5 wpm)

FORECAST PERIODS WILL BE SHORTENED DURING HEAVY STORMS. FRONTAL ZONES KEEP QSJ 1962.

The above example of Morse code shall not be used in an examination.

8.4 Briefing and familiarization

Examiners should allow time for adjusting equipment, briefing and familiarization prior to the test. The familiarization may include sending and receiving sample texts, excluding the text being used for the examination. The text for the sending test shall be different from that of the receiving test.

8.5 Timing

Examiners must ensure that the code receiving and sending examinations are timed.

8.6 Review

Examiners shall allow two (2) minutes at the end of the receiving test for candidates to review their copy and make any changes or corrections, if necessary.

For the sending test, candidates may send the error signal and resend the character as many times as they wish, but they must send the complete text within the time allotted.

8.7 Marking

Examiners shall assign marks for Morse code receiving tests by counting errors and giving a mark of 100% where there are 5 errors or less, 99% for 6 errors, 98% for 7 errors, 97% for 8 errors, and so on. The pass mark for code receiving is 100%.

Notations of dots and dashes on an examination paper will be considered as evidence of inability and cause for rejection of the test.

In both the sending and receiving Morse code tests, each character, including figures and punctuation, that is omitted or incorrectly sent or received, is counted as one (1) error.

8.8 Re-examination

A candidate who fails a Morse code test may be re-tested as often as necessary, at the convenience of both the examiner and the candidate. The examiner must ensure that different Morse code tests are used for each re-examination.

▼ 9. Audits

This section explains why and how ISED uses audits with regards to examinations for Amateur Radio Operator certificates.

9.1 Purpose of audits

In order to ensure that examiners adhere to departmental guidelines and that they remain up to date regarding amateur radio service policies and procedures, audits will be performed on a random sample basis.

The frequency and the extent of the audit program are the responsibility of the ISED area manager.

It may also be necessary to periodically perform audits to ensure that ISED has relevant, current and credible information on the effectiveness of the accredited examiner program. Audits are intended to be a constructive review.

Additionally, audits may be performed as a result of complaints lodged with ISED. The auditor will notify the accredited examiner, in writing, of any concerns that should be addressed. Where a discrepancy is discovered, the auditor will work with the examiner to correct the problem.

9.2 Fraud or negligence

Where the auditor determines that there may be a situation of fraud or negligence, or when valid complaints of such activities are received, the appropriate ISED District Office will conduct an investigation. Where warranted, ISED will revoke the accreditation of examiners. Certificates fraudulently issued may also be revoked.

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