



Novice Class Amateur Radio Examinations Syllabus

May 24th, 2007

National Telecommunications Regulatory Commission
Saint Lucia

1. Rationale

Although amateur radio is a hobby to its members, worldwide it is recognised as a powerful form of communication, especially in times of disaster, and so has been afforded many operating privileges. As a result, it is required that amateur radio operators are appropriately trained to prudently use the operating privileges that have been bestowed on the fraternity, and their responsibilities therein.

In Saint Lucia, amateur radio operators are required to be licensed in keeping with the Telecommunications Act 2000 and its Regulation. For persons who are citizens of Saint Lucia, three (3) classes of Amateur Radio Licences can be issued:

- (i) Novice Class Amateur Radio Licences;
- (ii) General Class Amateur Radio Licences;
- (iii) Advanced Class Amateur Radio Licences.

However a key prerequisite for favourable consideration of those licences is that the applicant must pass examinations that have been approved by the National Telecommunications Regulatory Commission, which is mandated to oversee the telecommunications in Saint Lucia.

2. General Objectives

The Novice Class Amateur Radio Examination Syllabus has been designed to ensure that persons who will be eligible to be licensed at that class are firmly grounded in the key principles and practices that permit amateur radio communications. It is therefore critical that prospective candidates for Novice Class Amateur Radio Examinations:

- (a) Are knowledgeable about the basic operating rules and standards;
- (b) Are able to set up and maintain an amateur radio station; and
- (c) Are knowledgeable about basic technical theories and concepts that will improve not only their understanding of amateur radio, but also lay the foundation to advance to the next class of operation.

3. Established Content

Presented in Appendix A are **the possible areas of assessment in a Novice Class Amateur Radio Examination only**. It does not preclude persons (or tutors) from more in-depth study, which is encouraged.

4. Assessment Methods

The syllabus has been designed to assess both the theoretical knowledge and practical skills of candidates. The assessment will comprise two (2) parts:

- (i) a written examination¹, comprising multiple choice and short answer questions, and
- (ii) the assessment of practical skill, which could be measured by a final examination and/or through continuous assessment by a recognised tutor or examiner.

5. Recommended Texts

To appreciate the amateur radio operations in Saint Lucia and to secure information pertinent to the Novice Class, persons are advised to refer to

- *Framework for Amateur Radio Operations in Saint Lucia*, prepared by the National Telecommunications Regulatory Commission, and
- *The Amateur Radio Handbook*, by the Ministry of Communications, Works, Transport & Public Utilities.

With regard to studying technical theories and concepts used in amateur radio operations, a diverse number of texts and documents are available, some of which are free on the Internet.

¹ For persons with special requirements, or other needs or circumstances that might affect their ability to sit a written examination, these will be addressed on a case-by-case basis, and should be presented upon registration for the examination.

Appendix A

	<i>Syllabus</i>	<i>Assessment Objectives</i>
1.	Amateur Radio in Saint Lucia	
		(a) Recall the types of amateur radio licences that can be issued to residents of Saint Lucia . (b) Recall the amateur radio code.
2.	Novice Class Amateur Radio Licence	
2 (i)	National Operating Rules and Standards	(a) Recall operating privileges associated with the Novice Class Amateur Radio Licence, including the approved frequency bands, modes of operation and power limits. (b) Recall general rules and guidelines for amateur radio operations in Saint Lucia, which should include: <ul style="list-style-type: none"> - The permitted users; - The authorised transmissions; - The prohibited traffic; - Station identification requirements; - Third party transmissions; - Required contents of the Logbook. (c) Recall basic rules for passing emergency traffic.
2 (ii)	Call signs	(a) Recall the national identifier (or country prefix) for Saint Lucia and the general format of call signs as has been adopted in Saint Lucia, especially for the amateur radio operators in the Novice Class, General Class and Advanced Class. (b) Recall the national identifiers (or country prefix) for countries in the English-speaking Caribbean. (c) Recall rules associated with the assignment of call signs

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2 (iii)	International Operating Rules and Standards	<ul style="list-style-type: none"> (a) Recall the Phonetic Alphabet. (b) Recall basic Q Codes. (c) Recall Readability, Signal Strength and Tonal Quality (R-S-T) Codes. (d) Recall common abbreviations associated with amateur radio operations.
3.	Technical Theory and Concepts	
3 (i)	Basic Concepts	<ul style="list-style-type: none"> (a) Recall units of measurement for frequency, voltage, current, power, length, distance, time, resistance. (b) Recall the metric prefixes and conversion factors. (c) Recall the importance of the Earth, Neutral and Live wires in electrical circuits, and their colour codes (d) Recall the importance of a fuse in an electrical circuit (e) Recall how to wire an electric plug. (f) Recall the mains voltage and frequency in Saint Lucia.
3 (ii)	Frequency/Electromagnetic Theory	<ul style="list-style-type: none"> (a) Recall the frequency bands that comprise the electromagnetic spectrum and be able to provide examples of the types of applications that can be used by those bands. (b) Recall the speed of light, and the importance of the speed of light to electromagnetic theory. (c) Know how to differentiate between wavelength, time and frequency and the relationship between those elements. (d) Recall the basic relationship between wavelength and antenna size. (e) Solve basic problems involving wavelength, time and frequency.
3 (iii)	Radio Wave Propagation	<ul style="list-style-type: none"> (a) Recall basic characteristics of radio waves. (b) Recall the basic phenomena associated with radio waves, such as reflection, diffraction, scattering. (c) Recall the concept of line of sight, and its importance in radio wave

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		<p>propagation.</p> <p>(d) Recall the three (3) modes of radio wave propagation.</p> <p>(e) Recall how ground wave propagation and ionospheric propagation can be differentiated.</p> <p>(f) Recall the frequency ranges that permit ground wave propagation and ionospheric propagation.</p> <p>(g) Recall the atmospheric layers that are used in ionospheric propagation</p> <p>(h) Recall probable causes of interference, and basic ways its occurrence can be minimized.</p>
3 (iv)	Simple Electric Theory	<p>(a) Recall the parts of the atom, and the difference between a neutral atom, a positively-charged ion, and a negatively-charged ion.</p> <p>(b) Recall the importance of electrons to the flow of electricity.</p> <p>(c) Recall the properties of conductors and insulators, how they can be differentiated and how they are affected by electricity.</p> <p>(d) Recall the following basic electrical terms; know how they can be differentiated; and the schematic symbols used for them in basic electric circuits:</p> <ul style="list-style-type: none"> - cell, battery, voltage, current, resistance, alternating current, direct current, and. <p>(e) Recall Ohm's Law and the relationship between voltage (potential difference), current and resistance.</p> <p>(f) Solve basic problems based on Ohm's Law.</p> <p>(g) Solve problems based on the equation $P = V \times I$.</p>
3 (v)	Antennas	<p>(a) Recall the purpose of an antenna;</p> <p>(b) Recall and be able to identify popular antenna configurations, such as dipole antennas, quarter wavelength vertical antennas, Yagi-Uda antennas and vertical antennas.</p> <p>(c) Solve basic problems for a half-wave dipole antenna.</p> <p>(d) Recall what a feed line is and give examples of different types of feedlines.</p>

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		<p>(e) Recall the difference between a balanced feed line and an unbalanced feed line.</p> <p>(f) Recall factors that must be considered when feed lines are employed.</p> <p>(g) Recall what is the Standing Wave Ratio, and its purpose.</p> <p>(h) Solve basic problems based on the Standing Wave Ratio.</p>
4.	Setting Up and Operating an Amateur Radio Station	
4 (i)	Amateur Radio Station	<p>(a) Recall the differences between a base station, a handheld radio, a portable radio, a repeater, and other special stations, and their purpose.</p> <p>(b) Recall the main parts of a base station and their purpose.</p> <p>(c) Recall the main parts of a handheld or portable radio and their purpose.</p> <p>(d) Demonstrate how to wire a three-pin electric plug. (P)</p> <p>(e) Demonstrate the proper set up of an amateur radio station. (P)</p>
4 (ii)	Operating Practices and Procedures	<p>(a) Demonstrate the correct operation of a VHF transmitter in simplex and in duplex modes. (P)</p> <p>(b) Demonstrate the correct operation of an HF transmitter in (voice) SSB mode. (P)</p> <p>(c) Demonstrate a CQ call on VHF and HF, making contact and initiating a change of frequency off the calling channel. (P)</p> <p>(d) Demonstrate, based on a CQ call, entry of information into the Logbook. (P)</p> <p>(e) Demonstrate the passing of emergency traffic, and the passing of traffic on a network with a network controller. (P)</p> <p>(f) Demonstrate the relaying of traffic, i.e. when acting as a relay station. (P)</p>
4 (iii)	Safety	<p>(a) Recall the importance of proper earthing, and the types of grounds that might be required on or around an amateur radio station.</p>

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		<p>(b) Recall the importance of RF ground.</p> <p>(c) Recall the importance of the fuse in electrical circuits, and how to select an appropriate fuse.</p>
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