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Australian Communications and Media Authority

ACMA recognition certificate examination

Exam component:	**Practical**
Level:	**Foundation, Standard, Advanced**

Assessment questions

Element of competency	Method	Performance criteria	Competency assessment
1. Identify common transmission line types	Using physical examples or photographs or diagrams of common coaxial and parallel transmission lines provided to candidate.	Correctly identify 3 types of transmission lines as coaxial or parallel. Codes (e.g., RG58) are not required.	Assessor (C/NYC)
2. Identify balanced and unbalanced transmission lines	Using physical examples or photographs or diagrams of common coaxial and parallel transmission lines provided to candidate. At least 1 type of transmission line must be balanced and another unbalanced.	Identify the types of transmission line as balanced or unbalanced.	Assessor (C/NYC)
3. Identify common coaxial connectors	Using physical examples, photographs or diagrams of 3 types of coaxial connector.	Identify at least 2 of the 3 types present. Example: PL-259, BNC, N-Type.	Assessor (C/NYC)
4. Demonstrate how to conduct a continuity check on a coaxial cable that is terminated with RF connectors on both ends	Physical skill test using a provided ohmmeter and terminated coaxial cable. Or oral questions about how the test procedure would be conducted.	Using an ohmmeter: Low loop resistance test with 1 end short circuited and high resistance open circuit test. Or oral description of the test and interpretation of results of the test.	Assessor (C/NYC)
5. Identify antennas	Physical examples or supplied (standard) assessor's diagram of 5 antenna types.	Correctly identify at least 4 of the 5 antennas.	Assessor (C/NYC)
6. Construct an RF choke	Candidate to physically demonstrate or fully describe how an RF choke is constructed (of a type used for RF interference suppression). Or simulated construction using a Ferrite toroid or rod and cable or wire.	Correctly constructs (physically, verbally or simulated) a simple RF choke for interference suppression.	Assessor (C/NYC)
7. Identify symbols	Using the standard assessor's symbol chart to identify at least 5 unlabelled symbols, 2 of which must be antenna and earth.	Five symbols correctly identified, 2 of which must be antenna and earth.	Assessor (C/NYC)

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8. **Demonstrate the safe connection of a transmitter / receiver (transceiver), ready for powering up, and the power-up procedure**	Physically connect a transceiver to a power source, an antenna (or dummy load). Connect an external SWR meter and antenna tuner. All interconnecting cables and equipment are supplied and are in an appropriate uncluttered environment. No other equipment other than that to be connected should be available. Task can be simulated.	Station connected in a safe manner with devices in the correct order. The power turned on in the correct sequence.	Assessor (C/NYC)
9. **Identify amateur radio bands for the Foundation licence (or Standard or Advanced if the candidate is attempting that assessment)**	Using a copy supplied by the assessor of the amateur class licence, candidate to correctly identify the band limits of any 4 bands chosen by the assessor.	Four bands and their frequency limits correctly identified. Candidate must explain where and how the latest amateur class licence can be obtained.	Assessor (C/NYC)
10. **Demonstrate the protocol(s) required before transmission**	Candidate is provided a tuned, ready-to-use amateur radio station on HF and VHF or UHF, with no tuning or adjustments necessary. Candidate to demonstrate the requirement to listen on frequency before transmission and may include increasing the receiver gain or opening mute for weak signal detection. This task should be repeated up to 3 times and may be incorporated in other elements of competency.	Demonstrated the requirement to listen on frequency before transmission and adjustment of receiver sensitivity as appropriate. For example, increase AF and RF gain.	Assessor (C/NYC)
11. **Demonstrate making on-air calling procedures for HF and VHF or UHF**	Candidate is provided with a ready-to-use amateur radio station. Candidate is to demonstrate (preferably on-air) the procedure to make a call on HF and VHF or UHF. The call should be to a specific station. This activity may be simulated using a dummy load between candidates or between a candidate and assessor or another radio amateur. This task should be completed on HF and VHF or UHF at least 3 times. This task can include other elements of competency, e.g., demonstrate protocols before transmitting.	Demonstrated the correct procedure for calling a specific station. Candidate completes 3 on-air contacts (may be with the same participating station) or accurate simulation of on-air contacts using the correct protocols.	Assessor (C/NYC)

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12. Demonstrate how the signal strength meter is used in conjunction with a signal report	Using an amateur radio station on HF and VHF or UHF, candidate demonstrates the use of a signal strength meter. This is preferably done on-air but could be done by reception of a station and the report provided to the assessor. A detailed description of the RS or RST code is not required. Report to be accompanied by English description, e.g., 'RS + and your audio sounds very good'. This task should be repeated up to 3 times and may be incorporated in other elements of competency. This task can be simulated.	Candidate demonstrates a basic knowledge of the RS (readability and signal strength) and plain language method of providing signal reports.	Assessor (C/NYC)
13. With the material provided, demonstrate the correct use of voice repeaters, with and without: **a) CTCSS** **b) DTMF**	Using an amateur radio station (preferably on-air), candidate demonstrates the use of voice repeaters with and without CTCSS or DTMF tones, e.g., repeater access with and without IRLP. Candidate must demonstrate the need to identify the station before transmitting DTMF tones and may incorporate other elements of competency such as protocols before transmission. This task can be simulated.	Candidate demonstrates a rudimentary knowledge of the use of CTCSS and DTMF tones, for voice repeater access and interconnection, e.g., IRLP. Which tones are audible. How CTCSS reduces repeater interference.	Assessor (C/NYC)
14. Purpose of breaks in transmissions	Using oral questioning, discuss the purpose and importance of breaks in transmissions on HF and VHF or UHF. May be done as part of other elements of competency involving on-air operation. Candidate demonstrates the use of breaks in transmission.	Candidate demonstrates (preferably on-air, however may be done by questioning) the need for breaks in radio transmissions.	Assessor (C/NYC)
15. Change to another frequency (QSY)	Preferably by use of an amateur radio station after making a contact with another station, demonstrate the correct protocol for changing to another frequency. May be completed as part of another element of competency requiring on-air operation or simulation.	Candidate (on-air, or accurate simulation), successfully establishes a contact and changes to another frequency and re-establishes contact on that frequency with the contact station.	Assessor (C/NYC)
16. Q-code and the phonetic alphabet; use of plain language	Using oral questioning only, candidate should be asked the purpose of the Q-code and the phonetic alphabet, including the importance of standardised codes and signals over radio, use of language, slang, etc. Note: while not preventing such use, it is not a requirement for the candidate to use the Q-code or the phonetic alphabet in any part of this assessment.	Candidate provides a knowledge of the existence (only), of the Q-code and phonetic alphabet and knowledge of purpose for their use. Candidate's answers demonstrate the importance of the use of plain language in radio communications.	Assessor (C/NYC)

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17. Transmitter power measurement and adjustment	Demonstrate the measurement of output power of a transmitter. Adjust the transmitter power to within legal limits. This may be done using an amateur radio station connected to a dummy load. No modulating sources other than voice are required. No modulation depth monitoring is required; estimation of power only is required; no complex PEP measurements. Estimate made using a commercial power measuring device. The power meter should preferably be an external instrument. This measurement should be done on SSB and FM.	Candidate demonstrates or explains the ability to make simple power measurements and adjustment using a commercial wattmeter.	Assessor (C/NYC)
18. Measurement of SWR	Using an amateur radio station connected to an antenna (preferably), candidate should demonstrate the ability to make a simple SWR measurement. This task may be completed off-air with simulated mismatched loads. Candidate should be able to disclose if the reading obtained is satisfactory (equal to or less than 1.5:1).	Candidate demonstrates the correct technique (including identification of transmission if conducted on-air) for making a simple SWR measurement. Candidate is able to interpret if the reading is within acceptable limits (equal to or less than 1.5:1). The task can be simulated to the satisfaction of the assessor.	Assessor (C/NYC)
19. Correcting high SWR	Using oral questioning, candidate is asked on methods to correct an antenna system that may have a high SWR, e.g., use an antenna tuner or correct an antenna fault or adjust the antenna etc. Specific adjustments or tuning are not required in this assessment task.	Candidate orally describes what remedial action may be taken to rectify a high SWR problem.	Assessor (C/NYC)
20. High voltage and currents	Using oral questions, ascertain that the candidate is aware of the dangers of high voltage (electric shock) and current (heat, burning and possibly fire).	Candidate demonstrates an awareness of the dangers of high voltages and currents.	Assessor (C/NYC)

Examination outcome: to be completed by the assessor

Assessment outcome (C/NYC):

Assessor name	Signature– for computer-based exams, type your name & add '(signed electronically)' after it	Date