



**MALAYSIAN COMMUNICATIONS AND
MULTIMEDIA THE COMMISSION**

REVIEW OF AMATEUR RADIO SERVICES IN MALAYSIA

DISCUSSION PAPER

FEBRUARY 2005

PREFACE

In this discussion paper, the Commission seeks to invite submission from interested parties on the issues raised in the discussion paper or any other matters of interest relevant to the subject. Written submissions, be it in **hard copy** or in **electronic form**, should be provided to the Commission before **12 noon on 1 March 2005**. Submissions should be addressed to:

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In the interest of fostering an informed and robust consultative process, the Commission may publish the comments received. Any commercially sensitive information should be provided under a separate cover clearly marked '**Confidential**'.

The Commission extends our appreciation to interested parties for their participation and for providing written submissions in this consultative process.

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GLOSSARY

AA	Apparatus Assignment
A.C.	Alternating Current
AROC	Amateur Radio Operator's Certificate
CB	Citizen Band
CW	Continuous Wave
D.C.	Direct Current
EMC	Electromagnetic Compatibility
FM	Frequency Modulation
HF	High Frequency
IF	Intermediate Frequency
ITU	International Telecommunication Union
RAE	Radio Amateur Examination
RF	Radio Frequency
SW	Short Wave
SWAL	Short Wave Amateur Listener
UHF	Ultra High Frequency
UTC	Universal Time (UTC is also known as GMT or Greenwich Mean Time)
VHF	Very High Frequency

INTRODUCTION

AMATEUR RADIO

Amateur Radio service is defined as a radiocommunications service (covering both terrestrial and satellite) in which a station is used for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorized persons who are interested in radio technique solely with a personal aim and without any pecuniary interest¹.

Millions of amateur radio operators communicate daily with each other directly or through ad hoc relay systems and amateur-satellites. Amateur Radio service is also used for emergency communications in times of natural disasters. Amateur radio operators throughout the world provide support communications, and sometimes is the only communications available immediately after a disaster.

Amateur radio operators have traditionally been recognized as an important part of the radio community and several frequency bands throughout the whole spectrum are allocated by ITU to this service internationally as well as in our Spectrum Plan.

With regard to the spectrum use, all frequencies are shared or common to all amateur radio operators and no frequency is assigned for the exclusive use of any amateur station. Amateur radio operators cooperate in selecting transmitting channels to make the most effective use of the allocated frequencies. Amateur Radio operators use the international narrowband Morse Code to communicate when transmission environment is not conducive to voice as well as to get the required range.

¹ International Telecommunication Union (ITU) – Radiocommunication Sector, Article I, Section III.

BACKGROUND

1. The Communications and Multimedia (Technical Standards) Regulations 2000 Third Schedule (Amateur Radio Operator's Certificate), states that there are 2 Classes of amateur radio operators namely; Class A and Class B.
2. Amateur radio operators (both Class A and Class B) need to pass the Radio Amateur Examination (RAE) to enable them to operate any amateur radio facilities. In order to be eligible for Class A, the amateur radio operators also need to pass a Morse Code test apart from the RAE.
3. Upon passing the RAE, amateur radio operators could apply for an apparatus assignment (AA) and be issued a call sign to operate an amateur radio station. Call signs are unique identification used to address the amateur radio operators whenever they are "on-air".
4. Amateur Radio Service has been around in Malaysia for almost 5 decades and the current number of registered amateur radio operators is only about 1400 people. In order to increase the numbers various steps have to be taken into consideration such as development, promotions and creating awareness to the general public.

REASON FOR THE STUDY

5. The objective of the review is intended to:
 - a. Update and simplify the regulation of amateur radio service.
 - b. Harmonize, where possible, the qualification requirement with other countries.
 - c. Maximize self-regulation within the amateur service; and
 - d. Promote the development of amateur radio service in Malaysia

6. In order for the Commission to conduct a comprehensive review on the Amateur Radio Service in Malaysia, the following issues needs to be addressed:
 - a. Morse Code Requirement.
 - b. Class of Operators.
 - c. Amateur Radio Service Examinations.
 - d. Operating Privileges.
 - e. Promotion of Amateur Radio Service.

ISSUES FOR CONSIDERATION

MORSE CODE REQUIREMENT

7. At the World Radio Communication Conference 2003 (WRC-03)², the international Radio Regulation Article S25.5 was revised to make Morse Code testing requirement a matter for each country's licensing administration to decide. Currently, the Commission still requires a Morse code test in order for a person to qualify for a Class A Amateur Radio Operator's Certificate.
8. Morse Code for many years was the only communication technique used by radio experimenters. As other technologies were introduced, many amateur radio operators adopted them and Morse Code was relegated from being the sole technique to just one of many communication methods which they used. It is inherent in emergency and disaster relief communications especially when all other means of communication fail, either a simple tapping sound, or a flickering light source, or the use of simple battery circuit to radiate small powered emitting frequency signal would capture the attention of search and rescue operations.
9. The issues on Morse Code was extensively and exhaustively debated in various forums internationally. Many amateur radio operators, and would-be amateur radio operators, now regard Morse Code as being irrelevant and uninteresting. It is likely that many potential amateur radio operators are dissuaded from seeking operating qualifications because of the Morse Code requirement. Even some keen Morse Code users admit that the use of Morse Code will largely disappear in the long term, except for certain specialized applications and for those who enjoy its use. Morse Code is a skill that requires a certain aptitude.
10. At present countries like *Australia, Canada, United Kingdom, Singapore, and Germany* have already dropped the requirement for Morse Code or are expected to do so. However, most countries are in the midst of evaluating their amateur radio licenses as well as their regulations to adopt to the elimination of the Morse Code requirement.

Recommendations:

- a) The Commission proposed that the Morse Code Test be eliminated with effect from 1/4/2007.

² The World Radio Communication Conference 2003 (WRC-03) is a forum organized by the International Telecommunication Union (ITU) to review or revise radio regulations. The last WRC was held in Geneva, 9 June to 4 July 2003.

QUESTION A

1. Should the Morse Code be eliminated? or, should the Morse Code remain status quo with a reduced word per minute (WPM) speed requirement.
2. When is the appropriate time to eliminate Morse Code?
3. If Morse Code requirement is eliminated, do you think that the proliferation of new services and technology could assist or complement use of amateur service during times of emergency, accident and national catastrophe?
4. One of the distinguishing element between Class A and Class B amateur licensees are Morse Code proficiency. Would the elimination of these classes promote grass root interest in the use of amateur radio?
5. Kindly submit suggestions or comments on any Morse Code related issues that faced by Malaysian Amateur Radio Operators today.

CLASS OF OPERATORS

11. Regulation 27(1) of the Communications and Multimedia (Technical Standards) Regulations 2000 states that no person shall undertake or conduct any activity in a designated skill area unless that person is certified. Amateur radio operators have been gazetted as a designated skill area category under the regulation, hence to operate an amateur radio service, a person needs to have the appropriate proficiency and skill i.e. certified in this area.
12. The certification of Amateur Radio Operator's Certificate (AROC) is necessary to prove that the amateur radio service operators have good knowledge of the subject and able to operate an amateur radio station in the correct and responsible manner required by Malaysian law. Currently there are two classes of AROC:
 - a) Amateur Radio Operator's Certificate - Class B (AROC Class B)
 - *Entry level to Amateur Radio. To be eligible for the AROC class B, a person must pass the written theory test commonly known as RAE.*
 - b) Amateur Radio Operator's Certificate - Class A (AROC Class A)

- *To be eligible for the AROC class A, a person must pass a written theory test commonly known as RAE and a practical test commonly known as Morse Code Test or CW Test.*
13. In reference to the elimination of Morse Code, countries such as Australia and Canada have made changes to their amateur radio licensing structure to better facilitate the change.
 14. With the Morse Code requirement eliminated, the Australian Communication Authority (ACA) had adopted a 3 tier structure. i.e. Foundation – (Basic level), Standard – (middle level), and Advance – (Highest level). Canada had also adopted a similar 3 tier license structure.
 15. Based on the restructuring of amateur radio licenses by various countries, the Commission believe that the Amateur Radio Societies of Malaysia should take into account the following factors should the Commission decide to eliminate Morse Code requirement:
 - i. They must consider the reciprocal agreements and other arrangements which allows Malaysian amateur radio operators to operate in other countries and foreign amateur radio operators to operate in Malaysia.
 - ii. The Morse Code test be made available in Malaysia for those amateur radio operators who may require such a qualification to operate in another country, and for those who wish to acquire skill in the use of Morse Code.

Recommendations:

- a) The Commission proposes to restructure the existing Classes of operators as follows:-

Class	Qualification
Novice (Entry Level) (New – Class C)	1. RAE (Part 1)
Advance (Currently - Class B)	<ul style="list-style-type: none"> • RAE (Part 2) • Pass practical test

Expert (Currently - Class A)	<ul style="list-style-type: none"> • RAE (Part 3) • Minimum 1 year in Advance • Pass practical test
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Note:

1. Novice class

- Entry level to Basic understanding of amateur radio service – regulatory, operational and technical requirements.
- Minimum age 14 (as stipulated in the regulations)
- Candidates must pass RAE (part 1)
- Will be given a call sign when candidate has passed the RAE.
- Successful candidates will be allowed to operate on limited frequency bands and power.

2. Advance class

- Intermediate level of understanding amateur radio service – regulatory, operational and technical requirements.
- Candidates to sit for a practical proficiency test to prove on intermediate level of amateur radio service usage.
- Minimum age 14 (as stipulated in the regulations)
- Candidates must pass RAE (part 2).
- Successful candidates will be allowed to operate on specific frequency bands and limited power.

3. Expert class

- Advance level of understanding amateur radio services – Operational and technical requirements
- Candidates to sit for an advance practical proficiency test to prove on advance level of amateur radio service usage.
- Candidates must pass RAE (part 3).
- Candidates to complete 1 full year of advance license.
- Successful candidates will be allowed to operate on all allocated frequency bands and specific power.

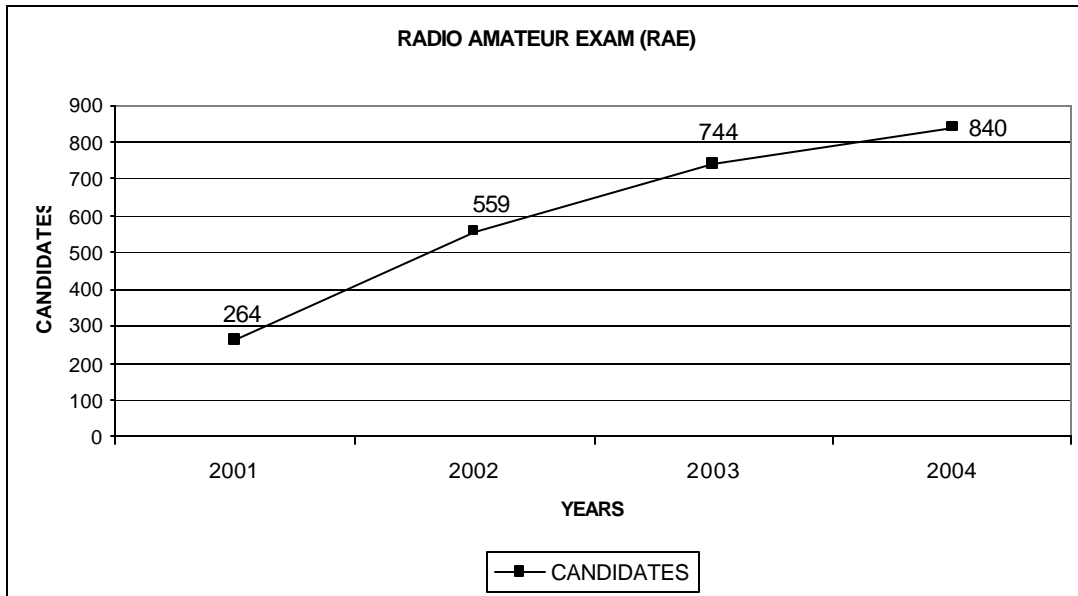
4. It is proposed that a time frame of 3 years would be needed to complete all levels of class from Novice, advance until expert class to further encourage amateur radio operators in Malaysia.

QUESTIONS B

1. Should Malaysian amateur radio operators maintain current class of operators or to adopt new classes of operators proposed above?
2. Kindly forward any comments on proposed classes, or alternatives as to how to encourage the public about amateur radio without minimizing the standards of amateur radio service in Malaysia.

RADIO AMATEUR EXAMINATION (RAE)

16. The Radio Amateur Examinations (RAE) is necessary to prove that the amateur radio operator has good knowledge on the subject matter and will be able to operate an amateur radio in the correct and responsible manner as required by the law. The certification of this designated skill area has been conducted by the Commission since there is no Certifying Agency appointed for this category. The examinations are conducted concurrently throughout the country with examination centres in Kuala Lumpur, Melaka, Taiping, Kuantan, Kuching and Kota Kinabalu.
17. The written examination is conducted twice a year by the Commission. It is a 3-hour examination where candidates are required to answer 100 questions (covers regulatory, operational, and technical questions as stipulated in the regulation).
18. The Commission has recently published the syllabus for the RAE contained in the *Guidelines For Amateur Radio in Malaysia*. The syllabus is a guide to assist candidates to prepare for the RAE. The examination syllabus will cover the regulation, operations and technical aspects of amateur radio activities in Malaysia. Candidates are expected to have sufficient knowledge on related regulations, theory and operation of the amateur radio and familiar with electronics and radio communications aspects.
19. The results from previous years RAE shows that there is an increase in the numbers of candidates each year which indicates a growing interest in the amateur radio service. Based on the registrations received to sit for the examinations, there need to be more frequently scheduled examinations to facilitate the take up rate.



SOURCE : MCMC

Recommendations:

- a. The Commission to appoint a Certifying Agency to conduct future RAE.
- b. With the proposal to add an additional class of operator to the existing AROC, the RAE syllabus would need to be reviewed to accommodate such changes i.e. novice syllabus, advance syllabus, and expert syllabus.

QUESTION C

1. Should a Certifying Agency for amateur radio service be appointed amongst the amateur radio societies or outsourced to the public?
2. Kindly comment on the current RAE and propose ways to enhance it

PRACTICAL PROFICIENCY TEST

20. In line with the elimination of the Morse Code test, a practical proficiency test is proposed in the amendments to the technical standards regulations to help facilitate the growth of the amateur radio operators. By having a practical proficiency test, certain levels of standard could be placed to distinguish between an advance and a

novice amateur radio operator besides the normal written Radio Amateur Examination.

21. Currently there are no practical proficiency test required for any given class of license. After a person has passed the Radio amateur examination and has received their call signs, it is up to them to engage with a society to learn more about amateur radio. It is also up to the individual to self learn and experiment following a certain standard which amateurs follow.

Recommendations:

- c) To ensure safe and proficient operation, a practical proficiency skills test should be included in both classes.
 - a. Class B or advance – basic level of proficiency to operate amateur radio.
 - b. Class A or expert – an advance level of proficiency to operate amateur radio.
- d) The commission to appoint the same certifying agency for the Radio Amateur Examination (RAE) to conduct the practical proficiency test.

Question D :

1. Should Malaysian amateur radio operators adopt a practical proficiency test additional to the current RAE in order to compensate from the elimination of the Morse Code?

OPERATING PRIVILEGES

22. Operating an amateur radio station is considered as a privilege in many countries. This is due to the fact that they are allowed to use the scarce resources, i.e. spectrum. Most of the times, the use is subsidized in the form of low license fees. This is further assisted by the large spread of radio spectrum from the low frequency range to microwave and beyond as well as experimenting and building own radio transmitters. They may usually use such self built equipment or purchased amateur equipment without having to under go or submit for equipment certification. These may be seen as *concessions* to promote the service by the country administrations.

23. These operating privileges are revised to accommodate the WRC03 conclusion so as to allow Class B amateur station to operate in HF (28-29.7MHz band). Note that previously a Morse Code proficiency at 12 wpm requirement is needed to operate in this band.
24. Maintaining these privileges requires certain regulatory control. Part of the control is via the issuance of Apparatus Assignment to licensed radio operators, management and issuance of call sign, radio interference, station construction, compliance to the standard operating procedures (SOP), international code and international recognition for reciprocity.
25. The Commission proposed that operators with Class B be also allowed to operate in the UHF bands in addition to the VHF bands that they have been allowed previously. This additional privilege is to facilitate amateurs to use TiongSat (amateur satellite) that was launched a few years ago. The apparatus assignment conditions would be amended accordingly.
26. From past experience such assignments do cause some interference and needed to be re-assigned a new frequency. For repeater management among radio amateur clubs and individual radio amateur operators in terms of frequency coordination and non-duplication, it is proposed that Radio Amateur Societies takes on the role of coordination. As a further note, the AFMS³ system does not do technical analysis on the frequencies used in an amateur repeater since it is assigned under the amateur service which is a band common to all amateur users (much like Citizen Band radios).
27. The proposed frequency bands, power level and the emission classes for the amateur radio station shall follow the prescribed limits shown in [Appendix 1](#)

Question E :

1. Current operating privileges have been revised and to further elaborate, we welcome any comments on the current frequency allocation for the Malaysian amateur radio operators.

PROMOTION OF AMATEUR RADIO

³ Automated Frequency Management System

28. Currently, there are a number of societies established in Malaysia which associate their activities within the Amateur Radio Services. However; these societies are often not linked or affiliated locally or internationally. Currently, there can only be one society to represent the country internationally under the umbrella of the International Amateur Radio Union (IARU). Among the local Radio amateur societies are as listed below:
- a) Malaysian Amateur Radio Transmitters' Society (MARTS)
 - b) Malaysian Amateur Radio Emergency Services Society (MARES)
 - c) Borneo Amateur Radio Club (BARC)
 - d) Malay Amateur Radio Society of Northern Peninsular Malaysia (ASTRA)
 - e) Sabah Amateur Radio Society (SARS)
29. In the United Kingdom, there are about 1.1 amateur radio operators per 1,000 populations. Corresponding figures in the US and Japan are 2.39 and 10.3 amateurs per 1,000 population respectively. We have only about 0.04 per 1,000 population. Thus, the Commission feels that there is an urgent need to review our existing amateur radio service framework to promote the development of amateur radio services.
30. Developing a large base of amateurs has its benefits in terms of developing strong community spirit, youth participation, and furthering technical knowledge in radio communications and radio astronomy.

Recommendations:

- a) The Commission to develop joint workshops or seminars with amateur radio societies to conduct annual Amateur Radio events nationwide.
- b) The Commission to develop a council comprising of representatives from all societies to better promote the development of the Amateur Radio Service in Malaysia.

Question G :

1. In order to promote the development of amateur radio services in Malaysia, kindly forward your suggestions and opinions to be incorporated into the review of amateur radio services.

APPENDIX 1: Amateur Frequency Band, Power and Classes of Emission

Class A privilege

Frequency Bands (in MHz)	Maximum Power Level (in Watts PEP)	Classes of Emission
1.8 - 2.0	25	A1A, A2A, A3E, F1A, F2A, F3E, J3E, R3E,
3.5 - 3.9	400	
7.0 - 7.1	400	
10.1 - 10.15	400	
14.0 - 14.35	400	
18.068 - 18.168	400	
21.0 - 21.45	400	
24.89 - 24.99	400	
28.0 - 29.7	400	
50.0 - 54.0	400	
144.0 - 146.0	400	
146.0 - 148.0	400	
430.0 - 440.0	100	
1,240 - 1,300	100	
2,300 - 2,450	50	
3,300 - 3,500	50	
5,650 - 5,850	50	
10,000 - 10,500	50	
24,000 - 24,250	50	
47,000 - 47,200	50	
75,500 - 81,000	50	
119,980 - 120,020	25	
142,000 - 144,000	25	
144,000 - 149,000	25	
244,000 - 248,000	25	
248,000 - 250,000	25	

Class B privilege

Frequency Bands (in MHz)	Maximum Power Level (in Watts PEP)	Classes of Emission
28.0 - 29.7	50	A3E, F1A, F2A, F3E, J3E, R3E,
50.0 - 54.0	50	
144.0 - 146.0	50	
146.0 - 148.0	50	
430.0 - 440.0	50	