**SURUHANJAYA KOMUNIKASI DAN MULTIMEDIA MALAYSIA**
***Malaysian Communications and Multimedia Commission***

# GUIDELINES FOR AMATEUR RADIO SERVICE IN MALAYSIA

**Third Edition**
**(20 December 2022)**

**Notice:**
The information contained in this document is intended as a guide only. For this reason, it should not be relied upon as legal document. Parties should still refer to the legislative provisions contained in the law.

**Malaysian Communications and Multimedia Commission**
MCMC HQ Tower 1
Jalan Impact
Cyber 6
63000 Cyberjaya
Selangor Darul Ehsan
Malaysia

Tel : +6 03 8688 8000
Fax : +6 03 8688 1000
Website : www.mcmc.gov.my

Published by MCMC
Third Edition
20 December 2022

## CONTENTS



## GLOSSARY

| | |
|---|---|
| Call sign | A series of letters and numbers used to identify a station and the country they are operating from |
| Carrier | The unmodulated output of a radio transmitter |
| Continuous Wave | The output of a radio transmitter that can be switched on and off to generate Morse code signals |
| Extremely High Frequency | The frequency range from 30 GHz to 300 GHz |
| Frequency Modulation | A modulating technique that varies the carrier frequency of the transmitter in accordance with the variations in the strength of the modulating audio signal. |
| Ham | Another name for an amateur radio operator |
| High Frequency | Frequencies ranging from 3 MHz to 30 MHz although the amateur “top band” on 1.8 MHz is generally considered to be part of the HF allocation. |
| Low Frequency | Frequencies ranging from 3 MHz to 30 MHz although the amateur “top band” on 1.8 MHz is generally considered to be part of the HF allocation |
| Medium Frequency | The frequency range from 300 kHz to 3 MHz[1] |
| Modulation | The process of changing the output carrier of a transmitter in order to convey information such as telephony. |
| Narrow band | Narrow band modes including CW, RTTY, Packet and modes with similar bandwidth not exceeding 2.4 kHz. |
| “Q” Code | The universal radio language used to make communication simpler by using three-character codes such as QSL, QRZ, QSB and etc. |
| Repeater | An unmanned station that receives signals on a certain frequency and simultaneously retransmits them on another. |
| Short Wave | Frequencies in the HF range of 3 MHz to 30 MHz |
| Super High Frequency | The frequency range from 3000 MHz to 30 GHz[2] |
| Transceiver | A combined receiver and transmitter in one unit. |
| Ultra High Frequency | The frequency range from 300 MHz to 3,000 MHz |
| Very High Frequency | The frequency range from 30 MHz to 300 MHz |

[1] 1MHz = 1000kHz
[2] 1GHz = 1000MHz

## ABBREVIATION

| | |
|---|---|
| AA | Apparatus Assignment |
| AROC | Amateur Radio Operator's Certificate |
| ARS | Amateur Radio Services |
| AOP | Amateur Radio Operating Procedures |
| ATV | Amateur TV |
| CMA 1998 | Communications and Multimedia Act 1998 |
| CW | Continuous Wave |
| EHF | Extremely High Frequency |
| EMC | Electromagnetic Compatibility |
| EME | Earth-Moon-Earth |
| FM | Frequency Modulation |
| GHz | Gigahertz |
| GMT | Greenwich Mean Time |
| HF | High Frequency |
| IARU | International Amateur Radio Union |
| IF | Intermediate Frequency |
| ITU | International Telecommunication Union |
| kHz | Kilohertz |
| LF | Low Frequency |
| MCMC | Malaysian Communications and Multimedia Commission |
| MHz | Megahertz |
| MF | Medium Frequency |
| NB | Narrow band |
| RAE | Radio Amateur Examination |
| RF | Radio Frequency |
| SHF | Super High Frequency |
| SSB | Single Side Band |
| SSTV | Slow-Scan TV |
| SRSP | Standard Radio System Plan |

| | |
|---|---|
| SW | Short Wave |
| SWL | Short Wave Listener |
| UHF | Ultra High Frequency |
| UTC | Coordinated Universal Time |
| VHF | Very High Frequency |
| WRC | World Radiocommunication Conference |

# MALAYSIAN COMMUNICATIONS AND MULTIMEDIA COMMISSION

# GUIDELINES FOR AMATEUR RADIO SERVICE IN MALAYSIA

## PART A: GENERAL

1. This document is developed by the MCMC as a guide for:

   a) Candidates who intend to sit for the RAE in order to operate a station in the frequency bands for amateur radio service (ARS); and
   b) Amateur radio operators who intend to operate an amateur radio station or earth station operating under the amateur service or amateur-satellite service allocation in Malaysia.

### Introduction

2. ARS exists in nearly every country. In Malaysia, ARS is regulated by MCMC. ARS is defined in the First Schedule of the Communications and Multimedia (Spectrum) Regulations 2000 (Spectrum Regulations) as "*a radiocommunications service in which a station is used for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons who are interested in radio technique solely with a personal aim and without any pecuniary interest".*

3. Separately, amateur-satellite service is defined in the First Schedule of the Spectrum Regulations as "*a radiocommunications service using a space station on earth satellites for the same purposes as those of the amateur radio service*".

4. Millions of amateur radio operators communicate daily with each other directly, through relay systems or amateur satellites. The service may provide an alternative for emergency communication in time of natural disaster if the commercial communications services are disrupted since it

is independent from any commercial service providers and the deployment of an amateur radio station is simple and straightforward.

5. The ARS offers significant value to the radio community in exploring the radio communications field, hence the ITU has allocated common frequency bands on sharing basis for the amateur radio operators around the globe to operate and explore further.

**Getting Started**

6. A person may start his or her hobby in amateur radio by joining a local amateur radio club. Clubs can provide information about licensing in their respective area, local operating practices and technical advice.

7. In Malaysia, amateur radio operators are required to pass the RAE to demonstrate their technical knowledge, operating competence and awareness of legal and regulatory requirements. Passing the examination entitles a person to apply for the AA or in general, the amateur radio licence.

8. Once the AA application is approved, MCMC will issue a call sign with “9W3”, “9W2/6/8”, or “9M” prefix depending on the operating class. This call sign is unique to every amateur radio operator. It must be used on the air to legally identify the amateur station during all radio communications. The entry level of the AA is AA Class C (“9W3” prefix). Upon qualifying for AA Class C, a person may upgrade his or her licence to Class B (“9W2/6/8” prefix). A person is required to operate on Class B for at least one year before being eligible to upgrade the licence to Class A (“9M” prefix).

## Things That You Can Do with Amateur Radio

9. Amateur radio operators are often called “ham radio operators” or "hams". Activities that amateur radio operators can do with their radios are diverse. The following are examples of the activities carried out by amateur radio operators:

   a) Communicate with amateur radio operators around the world with HF radio transceivers.
   b) Amateur radio operators can enjoy wireless communications within local communities by using small portable VHF or UHF radio transceivers.
   c) Assist during emergencies and disasters by providing immediate communications whenever normal communications services are unavailable.
   d) Build own radio, transmitter, receiver or antenna.
   e) Amateur radio operators can communicate through amateur satellites operated by the radio amateur community without any cost.
   f) Communicate with astronauts who are orbiting the earth.
   g) Carry out experiment with ATV, SSTV, or send still pictures.
   h) Participate in “transmitter hunt games” or “Fox Hunt” or maybe build your own directional finding equipment.
   i) Participate in search and rescue operations by providing the communications service.

## Things That You Are Not Allowed to Do with Amateur Radio

10. Amateur radio operators are not allowed to do the following with ARS:

    a) Activities with intention to generate financial income.
    b) Activities used for the expansion of business, religion and politics.
    c) Broadcast of amateur radio transmission to the public since the radio transmission is meant to be received by other amateur radio stations only.

d) Any other activities that are against the CMA 1998, its subsidiary regulations and other applicable laws.

**Radio Equipment Certification**

11. In contrast to most commercial and personal radio services, amateur radio operators are not restricted to use certified (type approved) amateur radio equipment. In this case, the amateur radio equipment can be home built or modified equipment in one way or another, as long as they adhere to the technical requirements such as operating frequency, power level, classes of emission and the national and international standards on spurious emissions.

12. MCMC has published an authorisation notice pursuant to subegulation 16(2) of the Communications and Multimedia (Technical Standards) Regulations 2000 (TSR 2000) to authorise a person who holds an amateur service AA to import and use any amateur radio equipment listed in the notice without the need to obtain a type approval or a compliance approval from the registered certifying agency (CA), i.e. SIRIM QAS International Sdn Bhd (SQASI). Importation of amateur radio equipment listed in the notice only requires an import permit (AP) from the Permit Issuance Agency (PIA), i.e. SQASI. The notice can be obtained from MCMC's official website.

13. For amateur radio equipment which is not included in the the aforesaid authorisation notice, importation of such equipment is subjected to a special approval from the registered CA. The equipment must have a proper certificate issued by the registered CA before it is eligible to be considered for the issuance of import permit. The equipment must comply with all the requirements specified by the relevant technical codes registered by MCMC.

## ITU Frequency Allocations

14. ITU Radio Regulations is an international treaty ratified by the respective Governments of the Member States to define the rights and obligations of the Member States in respect of the use of radio spectrum and satellite orbit. It will be updated every 3 to 4 years by WRC[3]. ITU Radio Regulations classify the various services that use radio communications and contains the technical and operational conditions to ensure the stations in such services can operate without interference. The frequency allocation for ARS shall be referred in ITU Radio Regulations which can be downloaded from https://www.itu.int/pub/R-REG-RR.

## Spectrum Plan

15. The Spectrum Plan sets out the allocation of frequency bands to various types of services. A number of different frequency bands are allocated to amateur and amateur-satellite service, together with the relevant accompanying footnotes. Unless otherwise stated, the allocation of amateur service relates to terrestrial radiocommunications.

16. The use of spectrum for amateur and amateur-satellite service in Malaysia shall be subject to the issuance of AA in accordance with the CMA 1998 and the Spectrum Regulations.

17. Pursuant to the Spectrum Plan, MCMC has also developed a series of documents to provide guidance on efficient spectrum usage namely SRSP on the minimum technical and regulatory requirements for efficient use of the radio frequencies.

18. For instance, MCMC has developed the SRSP ARS 144 - Requirements for Amateur Radio Service Operating in the Frequency Band of 144 MHz to 148 MHz. SRSPs cover the minimum key characteristics considered

[3] https://www.itu.int/ITU-R/go/wrc/en

necessary in order to make the best use of the available frequency and can be downloaded from MCMC's official website.

**Band Plan**

19. In general, a band plan is a plan for using a particular band of radio frequencies that are a portion of the electromagnetic spectrum. Each band plan defines the frequency range to be included, how channels are defined, and what will be carried on in those channels. The band plan is designed to maximise the utilisation, minimise interference and optimise the usage of the band. To ensure the efficient utilisation of the allocated bands and international/regional harmonisation, the band plans for use in Malaysia in this document are mapped to the IARU Region 3[4] Band Plans as shown in **Appendix 1**.

[4] https://www.iaru.org/about-us/organisation-and-history/regions/

## PART B: HOW TO PARTICIPATE IN AMATEUR RADIO SERVICE

20. In order to operate an amateur radio station in Malaysia, an operator must have an AROC and valid AA issued by MCMC, or a foreign amateur radio licence from any countries that have a reciprocal arrangement with Malaysia.

21. In respect of the AA, the person may submit an application to MCMC based on the eligibility to obtain the appropriate AA.

22. A unique call sign will be assigned together with the AA issued, based on the latest Guideline on the Allocation of Call Sign to the Amateur Radio Service published by the MCMC. The document can be found on MCMC's official website.

### Amateur Radio Operator's Certificate

23. Subregulation 27(1) of the TSR 2000 states that "*subject to subregulation 26(4), no person shall undertake or conduct any activity in a designated skill area unless that person is certified"***.** Amateur radio operator is one of the designated skill areas under the TSR 2000. Hence, to operate an amateur radio station, a person needs to be certified, which in turns demonstrates appropriate proficiency and skill.

24. The certification is necessary to prove that the amateur radio operators have good knowledge of the subject matter and able to operate an amateur radio station in the correct and responsible manner as required by the law.

25. There are three classes of certification available, as stated in the Third Schedule of the TSR 2000.

25.1 Amateur Radio Operator's Certificate Class A

The AROC Class A allows the holder to apply for the AA for an amateur radio station Class A**.** In order to acquire this certificate, the person must pass a written examination, which is the RAE Class A and fulfil the following requirements:

a) a holder of a AROC Class B; and
b) a holder of an AA for an amateur radio station Class B for at least one year.

25.2 Amateur Radio Operator's Certificate Class B

The AROC Class B permits the holder to apply for the AA for an amateur radio Class B. In order to acquire this certificate, the person must pass a written examination, which is the RAE Class B and fulfils the requirement of being is a holder of the AROC Class C.

25.3 Amateur Radio Operator's Certificate Class C

The AROC Class C permits the holder to apply for the AA for an amateur radio Class C. In order to acquire this certificate, the person must pass a written examination, which is the RAE Class C.

**Radio Amateur Examination**

26. There are three types of examination pertaining to radio amateur conducted by MCMC.

26.1 RAE Class A

The RAE Class A is a written examination which covers the following topics:

a) The advanced knowledge of:
   i. radio wave propagation;
   ii. amateur practice;
   iii. electrical principles;
   iv. circuit components;
   v. practical circuits;
   vi. signals and emissions;
   vii. antenna and transmission lines; and
   viii. safety.

b) The establishment and operation of a station performing an amateur experimental service under any regulations of the CMA 1998; and

c) The ITU Radio Regulations applicable to the operation of a station including the operation of a station performing an amateur experimental service.

The RAE Class A comprises of 50 multiple-choice questions with passing marks of 74%. Candidates are given one and a half (1.5) hour to answer all questions. The questions are available in both English and Bahasa Malaysia.

The structure of the questions is as shown in the following table.

| No. | Topics / Syllabus | No. of Questions |
|---|---|---|
| 1. | Operating Rules and Regulations | 8 |
| 2. | Radio Wave Propagation | 8 |
| 3. | Amateur Practices | 5 |
| 4. | Electrical Principles | 6 |
| 5. | Circuit Components | 4 |
| 6. | Practical Circuits | 4 |
| 7. | Signals and Emissions | 4 |
| 8. | Antennas and Transmission Lines | 7 |
| 9. | Safety | 4 |

26.2 RAE Class B

The RAE Class B is a written examination which covers the following topics:

a) The fundamental theories of:
   i. electricity;
   ii. electronics and radiocommunications including transistor, resistor, capacitor, rectifier, switch, fuse and solid state devices;
   iii. receiver and transmitter;
   iv. antenna and radio propagation;
   v. interference; and
   vi. measurement and power

b) The establishment and operation of a station performing an amateur experimental service under any regulations of the CMA 1998; and

c) The ITU Radio Regulations applicable to the operation of a station including the operation of a station performing an amateur experimental service.

The RAE Class B comprises of 50 multiple-choice questions with passing marks of 74%. Candidates are given one and a half (1.5) hour to answer all questions. The questions are available in both English and Bahasa Malaysia.

The structure of the questions is as shown in the following table.

| No. | Topics / Syllabus | No. of Questions |
|---|---|---|
| 1. | Operating Rules and Regulations | 8 |
| 2. | Electronics and Radiocommunications | 8 |
| 3. | Transistor, Resistor, Capacitor, Rectifier, Switch and Fuse | 5 |
| 4. | Solid State Devices | 5 |
| 5. | Receiver | 5 |
| 6. | Transmitter | 4 |
| 7. | Antenna and Radio Propagation | 4 |
| 8. | Interference | 4 |
| 9. | Measurement and Power | 3 |
| 10. | General Technical Knowledge | 4 |

26.3 RAE Class C

The RAE Class C is a written examination which covers the following topics:

a) The basic concepts of radio theory, electromagnetic theory, antenna, radio propagation, radio setup and radio safety;

b) The establishment and operation of a station performing an amateur experimental service under any regulations of the CMA 1998; and

c) The ITU Radio Regulations applicable to the operation of a station including the operation of a station performing an amateur experimental service.

The RAE Class C comprises of 35 multiple-choice questions with passing marks of 74%. Candidates are given one (1) hour to answer all questions. The questions are available in both English and Bahasa Malaysia.

The structure of the questions is as shown in the following table.

| No. | Topics / Syllabus | No. of Questions |
|---|---|---|
| 1. | Operating Rules and Regulations | 9 |
| 2. | Radio and Electromagnetic Theory | 9 |
| 3. | Antenna and Radio Propagation | 9 |
| 4. | Radio Setup and Safety | 8 |

27. Please refer to **Part D** for the detailed syllabus.

**Eligibility Requirements for the Radio Amateur Examination**

28. The eligibility requirements for the RAE are as follows:

a) A Malaysian citizen, a permanent resident in Malaysia or a foreign citizen with Malaysia My Second Home (MM2H) visa; and

b) Meeting the age requirements of the following respective class:

| RAE | Requirements |
|---|---|
| Class A | • Minimum age of 15 years old |
| Class B | • Minimum age of 14 years old |
| Class C | • Minimum age of 12 years old |

**Examination Fees**

29. The examination fees are as follows:

| Examinations | Application Fees |
|---|---|
| Written Examination (RAE Class A, B & C) | RM 50.00 |

30. An examination voucher must be purchased via MCMC e-Payment Portal prior to the RAE application. A candidate can only purchase one (1) voucher at a time. The voucher is valid for up to one year.

31. The examination voucher is not refundable in the event a candidate fails to register before the expiry date of the voucher or fails to attend the registered RAE session. The voucher is also not transferable to any other candidates. Please refer to the SKMM Examination Management System (SEMS) Guide section of this document for further information.

**How to Apply for the Radio Amateur Examination**

32. The examination will be held according to schedule published on MCMC's official website.

33. The application for the RAE can be submitted through SEMS. The details of SEMS, terms and conditions, application procedures, payment mode and other related matters pertaining to the examination can be found in **Appendix 2** of this document.

**SKMM Examination Management System**

34. SEMS is an online platform that enables you to register for RAE (Class A, B and C). The system also provides various functions in managing your application process including checking on the application status and exam results. For any enquiries, email the administrator at semsadmin@mcmc.gov.my.

**Amateur Station Apparatus Assignment**

35. All amateur radio operators shall obtain a valid AA from MCMC before operating or conducting any activities in the ARS and shall be subject to all the relevant laws, including the AA conditions imposed.

36. There are a few types of AA such as the following:

a) Amateur Station Class A
b) Amateur Station Class B
c) Amateur Station Class C
d) Amateur Repeater Station
e) Amateur – Satellite Station

37. The procedures relating to AA application can be referred to the Guidelines for Apparatus Assignment which can be found on MCMC's official website.

**Eligibility for Amateur Station Apparatus Assignment Application**

38. Eligibility for the AA application is as follows:

| RAE | Requirements |
|---|---|
| AA Class A | • Holder of AROC Class A<br>• Holder of an AA for an amateur radio station Class B for at least one year |
| AA Class B | • Holder of AROC Class B |
| AA Class C | • Holder of AROC Class C |

**Fees for Apparatus Assignment of Amateur Radio Service**

39. The fees for various assignment types in ARS are listed in the following table.

| Assignment Type | Application Fee | Annual Fee |
|---|---|---|
| AA Class A | RM 60.00 | RM 36.00 |
| AA Class B | RM 60.00 | RM 24.00 |
| AA Class C | RM 60.00 | RM 12.00 |
| Amateur Radio Repeater Station | RM 60.00 | RM 60.00 |

40. For more information, please refer to the First and Second Schedules of the Spectrum) Regulations.

**Compliance with the International Telecommunication Conventions, Acts and Legislations**

41. The AA holder shall comply with:

a) The relevant provisions of the CMA 1998 and its subsidiary legislations, and Radio Regulations of the ITU
b) The usage of frequencies for repeater stations operating VHF and UHF bands within the border coordination zones shall require coordination at common border areas with the neighbouring countries within the coordination zones. Agreement may differ from one neighboring country to another subject to the requirement of the respective country. In the event there is no agreement on coordination zone, a zone within 50 km from the border of the neighboring countries will be used.

**International Assignment and Operation**

42. When traveling abroad, amateur radio operator shall obtain a valid reciprocal assignment with the country in which he/she wishes to operate. Reciprocal assignment requirements vary from country to country. Some

countries have bilateral or multilateral reciprocal operating agreements allowing amateur radio operator to operate within their borders with a single set of requirements.

**Reciprocal Operating Arrangement**

43. Foreign amateur radio operator may apply for a reciprocal license (assignment) if reciprocal arrangement exists. MCMC may issue the appropriate reciprocal assignment (reciprocal license) to the foreign amateur radio operator if he or she meets all the requirements and conditions. The class of the assignment will be equivalent to the foreign license class issued by the authority in his or her original home country. Please refer to **Appendix 3** for the list of countries, which currently have reciprocity with Malaysia.

44. The assignment issued will be for a period not more than the validity period of passport, home country license, or one year whichever is the lesser.

45. Foreign amateur radio operator from any countries which have no reciprocal arrangement will be dealt with under special arrangement on case to case basis. The application shall be on temporary basis and to be accompanied with a recommendation from a local Class A amateur station AA holder (obtained *"callsign"* with "9M" prefix).

## PART C: AMATEUR RADIO OPERATING PROCEDURES

46. This AOP is intended to provide guidance for the operation of an ARSA. The AOP briefly describes the rules and conditions governing the operation of an amateur radio station in Malaysia.

### Display of Apparatus Assignment

47. The amateur radio operator must adhere to the following rules when setting up the amateur stations.

    a) The amateur radio AA shall be displayed in close proximity of the equipment at the station's address stated in the assignment; and

    b) All mobile stations must carry a copy of the AA as proof of identity.

### Amateur Radio Station Log Book

48. The station log book is a book that permanently records all of the radio transmission activities, done by the amateur radio operators over a period of time, at the registered address printed on the AA. The log book can also be prepared on any electronic medium which can be viewed and reproduced in a hard copy. It should be made available for inspection by any authorized representative from MCMC. The content recorded shall be preserved for a period of at least two years. The station log book should record the following:

    a) The dates of all transmissions;
    b) The time of commencement and ending of every contact made (in local time or in UTC);
    c) The frequency / band used;
    d) The class or mode of transmissions;
    e) The power output;

f) Call sign of stations contacted;
g) The contact name / handle (if available);
h) Details of tests carried out; and
i) Locations when operations are from any temporary location

**Inspection of Amateur Radio Station**

49. All amateur radio operators shall permit an authorized officer from MCMC to inspect and test their amateur radio station. An authorised officer from MCMC may inspect and test the amateur radio station to ensure compliance with the relevant law. MCMC may suspend or cancel any AA if the amateur radio station does not comply with the AA conditions or the relevant laws including the CMA 1998, the TSR 2000 and the Spectrum Regulations.

**Frequency Bands, Power Level and Classes of Emission**

50. The frequency bands, power level and the emission classes for the amateur radio station in Malaysia shall follow the prescribed limits shown in **Appendix 4**.

**Spurious Emissions Limit for Amateur Radio Station**

51. Amateur radio operator must ensure that their amateur radio station spurious emissions comply with the ITU requirements on the spurious emission limits for amateur radio stations. The maximum permitted spurious emission power level is calculated by subtracting the following values of "attenuation" from the transmitter power supplied to the antenna transmission line.

| Type of service | Attenuation (dB) below the power supplied to the antenna transmission line |
|---|---|
| Amateur services operating below 30 MHz (including SSB) | 43 + 10 log (PEP), or 50 dB, whichever is less stringent |
| All other amateur services | 43 + log (P), or 70 dB, whichever is less stringent |

Where

P : mean power in watts supplied to the antenna transmission line.

PEP : peak envelope power in watts supplied to the antenna transmission line.

52. Spurious emissions from any part of the installation other than the antenna and its transmission line shall not have an effect greater than what would occur if this antenna system was supplied with the maximum permitted power at that spurious emission frequency.

**Installation of Amateur Radio Station**

53. Subject to the necessary approval of the relevant authority body, the amateur radio operators may erect external or outdoor antennas which shall be structurally safe and shall not pose any danger to the public and any public properties.

54. The amateur station operator may also establish more than one station but not allowed to operate at more than one location simultaneously except when another AA has been issued for a special event.

55. The grant of the AA shall not be construed in any manner that authorisation has also been granted for the use of the network facilities, structures and/or properties, relevant for the use of the AA for the provisioning of network services.

56. The use of the AA shall be subject to the AA holder obtaining all necessary approvals from the relevant parties for the use of the said network

facilities, structures and/or properties. For avoidance of doubt, properties herein shall include the land where the network facilities and/or structures are erected and/or stations are located.

**Operating the Amateur Station**

57. An amateur station may be operated at any time provided that no uninterrupted transmission in frequencies below 30 MHz shall exceed 10 minutes, and three minutes for frequencies above 30 MHz.

58. The amateur radio operators are to adhere to the followings:

a) Upon switching on your amateur radio, the operator is required to listen on the frequency momentarily to confirm that the frequency is free. If there are other amateurs using the frequency, the operator may join them by introducing his/her call sign on that frequency. You can interrupt the conversation during the three second pause; it requires stating your assigned call sign.
b) The word “BREAK” should never be used to join a conversation in the progress.
c) Only use the word “BREAK” or even better “BREAK BREAK BREAK” in emergencies with any life-threatening situations. It is also recommended to use “BREAK BREAK BREAK with emergency traffic”.
d) The radio operator should immediately introduce his/her identity by transmitting his / her call sign after calling “BREAK”. All other stations must release the frequency immediately and be on stand-by to assist if necessary.
e) Radio operators are required to provide three second intervals (pauses) for any audio message transmitted, as often as possible. At least one occasion of a three second pause should exist in one minute length messages.

f) In video and data transmission operations, a three second pause within the transmission is not required but a five second pause is essential at the end of each single transmission. This procedure is vital when messages are transmitted through a repeater, in which an interruption is allowed to be made in cases of emergency situations that requires a message to be transmitted.

g) In simplex operations, amateur radio operator should convey his/her call sign in the initial transmission and at least once in every 10 minutes of the transmission period.

h) In repeater operations, an amateur radio operator should convey his/her call sign in the initial transmission and at least once in every three minutes of the transmission period.

i) In HF operation or when operating in the frequencies below 50 MHz, the operator should convey the call sign in the initial transmission and subsequently at least once in every 10 minutes of the transmission period.

j) All call signs must be spelled according to the International Phonetic Alphabet for letters and figures. Please refer to **Appendix 5** for details.

k) When operating an amateur radio station through an amateur radio repeater station, the order of priority shall be as below.

| Station Priority | Station Type |
|---|---|
| First | Stations relaying / transmitting emergency or distress messages |
| Second | Low powered and hand held stations |
| Third | Mobile stations |
| Fourth | Base and high powered portable stations |

l) The control operator of the amateur radio repeater station should assign highest priority to stations providing emergency communications at any time and any amateur radio frequencies.

**Signal and Radio Check**

59. A signal and radio check is necessary to ensure that your amateur radio station is in good condition for operations from time to time. To eliminate any possible interference that may occur during the check, the following procedures should be followed.

    a) All transmitter tuning must be done using a dummy load.
    b) Make sure that the frequency to be used for the test is free when performing the tests.
    c) Call sign must be used to identify the operator and clarify the purpose of the test.

**Interference**

60. Please ensure that the radio transmission does not cause interference to any other radio services. Paragraph 15 (1) (c) of the TSR 2000 states that "*No person shall intentionally design, install, operate, maintain or modify any communications equipment in a manner which is likely to cause interference with, impairment, or malfunction of, or harm to any communications equipment or any other equipment"*.

61. Subregulation 15 (2) of the TSR 2000 denotes that "*A person who contravenes subregulation (1) commits an offence and shall, on conviction, be liable to a fine not exceeding three hundred thousand ringgit or to imprisonment for a term of not exceeding three years or to both"*.

62. The following procedures must be followed strictly in order to eliminate the potential interferences:

    a) Ensure that sufficient equipment, tools and test gear are available and can be used to monitor and verify that your transmission does not cause any interference to other radio services.

b) The operator of an amateur radio station must be responsible if their station is found to be the cause of interference. Immediate remedial actions must be taken to rectify the problems in case of interference.
c) Ensure that the transmission does not exceed the permitted levels of deviation.
d) Ensure that the radiated energy is always within the narrowest possible bandwidth for any class of emission in use.
e) The radiation of harmonics and spurious emissions should be suppressed to minimize interference.

**Signal Report**

63. A signal report is a report on signal strength received by an amateur radio station when a contact between amateur radio stations is established. Both stations will exchange signal reports to give an idea on the signal strength at the receiving station. This signal report will assist the amateur radio operator to make necessary adjustments to improve their transmission quality. The scale to indicate the telephony (voice) signal quality is called a Readability and Signal Strength Scale (RS). The scale is shown below.

| **Readability Scale (R)** | | **Signal Strength Scale (S)** | |
|---|---|---|---|
| **1** | Hardly perceptible; unreadable | **1** | Unintelligible; barely perceptible |
| **2** | Weak; readable every now and then | **2** | Weak signals; barely readable |
| **3** | Fairly good; readable but with difficulty | **3** | Weak signals; but can be copied |
| **4** | Good; readable | **4** | Fair signals |
| **5** | Very good; perfectly readable | **5** | Fairly good signals |
| | | **6** | Good signals |
| | | **7** | Moderately strong signals |
| | | **8** | Strong signals |
| | | **9** | Extremely strong signals |

64. A “5” “9” (5 and 9) report means that the transmitted signal is in the best quality at the received amateur station. For radiotelegraphy contact using Morse Codes, the scale to indicate signal quality in the signal report is called the RST (Readability, Signal Strength and Tone) scale. The RST scale is shown in **Appendix 6**.

**Phonetic Alphabet**

65. The phonetic alphabet is used to avoid confusion when transmitting difficult or unusual words. The phonetic alphabet must be used when communicating through amateur radio to avoid misinterpretation in the conversation.

66. Call signs should be spelled phonetically. Details of the phonetic alphabet and numbers are shown in **Appendix 5**.

**Q Code**

67. The Q code is a set of three letter code to be used in radiotelegraphy and amateur radio communications. The Q code is more commonly used as shorthand nouns, verbs or adjectives. The Q Code that is commonly used in amateur radio purpose is shown in **Appendix 7**.

**Continuous Wave**

68. CW is an un-modulated and un-interrupted RF wave, however in common ARS, it denotes Morse code transmission because it carries no audio modulation.

69. The use of abbreviations in CW will cut down unnecessary transmission. The common CW abbreviations in ARS are listed in **Appendix 8**.

**Call Sign**

70. A call sign of a station in the ARS in Malaysia is formed by two characters followed by a digit and a group of not more than three letters consist of a group of letters and/or numbers. It can be assigned to a base, mobile and portable amateur radio stations. Call signs should be used for initial contact and again when communication is concluded.

71. The amateur radio station will be allocated with a maximum of a six (6) character call sign according to category of the amateur radio stations. Details of the call sign allocation are provided in the Guideline on the Allocation of Call Sign to the Amateur Radio Service.

**Prohibited Transmissions for Amateur Radio Station**

72. The following transmissions are strictly prohibited:

a) Communications relating to anti-government, religion, politics, business and racial issues and any other forms of issues which are sensitive to the peoples of Malaysia.
b) Transmission of any music, communications intended to facilitate a criminal act, messages in codes or ciphers intended to obscure the meaning thereof, except as provided herein; messages containing profane, offensive, obscene or indecent words of any language; or false or deceptive messages, signals or identification.
c) Any form of broadcasting or use of the amateur radio apparatus for sending news, advertisements and communications of a business or non-experimental character or messages for pecuniary rewards or messages for and on behalf of a third party.
d) Use of amateur radio apparatus for malicious intent such as disrupting the usage of the amateur radio frequency and or any other similar acts that can cause interferences.
e) Retransmission of programs or signals emanating from any type of radio station other than an amateur station except weather forecast information intended for use by the general public and originated from Malaysian Government station.
f) Any other transmissions that are against the CMA 1998, its subsidiary regulations and other applicable laws.

## PART D: RADIO AMATEUR EXAMINATION SYLLABUS

73. This section describes the syllabus for the entire RAE (Class A, B and C). As a guidance for candidates, examination question bank for each class is available on sems.mcmc.gov.my.

### Laws and Regulations

74. Knowledge on:
    a) The ITU Radio Regulations;
    b) The operation of a station performing an amateur experimental service and those provisions relating to the operation of the station in general; and
    c) The scope of ITU Radio Regulations.
       The number of regions and which region Malaysia belongs to;
        i) The prefixes of the call sign allocated to Malaysia; and
        ii) The definition of Amateur Service.
    d) Basic knowledge and understanding on the relevant regulatory functions and legal provisions, which are applicable to ARS.
        i) CMA 1998;
        ii) TSR 2000;
        iii) Spectrum Regulations ;
        iv) Malaysian Communications and Multimedia Commission (MCMC) as the regulatory authority for amateur radio in Malaysia;
        v) AA for amateur radio operation such as qualification requirements, fees, assignment classes and other related conditions;
        vi) Frequency allocations, AA conditions (terms, provisions and limitations) and frequency bands, power level, classes of emission codes and types of transmission; and
        vii) The nature of amateur service and amateur satellite service.

**Operating Procedure and Practice**

75. Knowledge on the operating practices of radio amateur operator such as:
    a) Calling procedures in telegraphy and telephony – general calls to all stations and calls to specific stations;
    b) Log-keeping – Maintenance of a log book in accordance with the amateur station AA and the AOP requirements;
    c) Use of satellites and repeaters – the purposes, limitations, and methods of accessing;
    d) Use of Q code and other abbreviations appropriate to the Amateur Service;
    e) The phonetic alphabet – reasons for its use;
    f) Practical knowledge such as definition of squelch, VOX and etc.;
    g) The reasons for band planning – advantages of band planning;
    h) The use of phonetic alphabet – reasons for its use; and
    i) Safety precautions in amateur station – safety in operation and maintenance.

**Technical Aspect of Electronics and Radiocommunication**

76. Knowledge on basic / fundamental theory of electricity, electronics and radio communications such as:

    76.1 <u>Ohm's Law</u>

    a) The meaning of basic electrical terms such as voltage, current, conductor, insulator and resistance; and
    b) The units and their meanings.

    76.2 <u>AC & DC voltage, current, inductance, resistance, impedance, conductor and insulator</u>

    a) The relationship between voltage, current and power in the D.C. circuit;

b) The sine wave – definition of amplitude, frequency and period peak, peak-to-peak, instantaneous average and r.m.s. values, simple explanation of the terms phase angle, phase difference, phase lag and lead;
c) Important characteristics of conductors, semi-conductors and insulators – conductivity, resistivity and temperature coefficient of resistance;
d) Inductance and capacitance – units, inductive and capacitive reactance.
e) Electromagnetic induction – description of effects of self and mutual inductance; and
f) Series and parallel tuned circuits, resonance, impedance, dynamic resistance, calculation of resonant frequency amplification of current and voltage at resonance Q (magnification) factor.

76.3 Transistor, resistor, capacitor, rectifier, switch, fuse and etc

a) Resistors – symbols, types, colour coding, tolerance, wattage ratings, resistors in series and parallel;
b) Capacitors – symbols, characteristics and uses of paper, ceramic, silvered mica, polystyrene, variable and pre-set, non-inductive, electrolytic and tantalum capacitors;
c) Effects of capacitance in A.C. circuits – meaning of capacitance reactance, dielectric strength, breakdown voltage, absorption and losses; electrostatic shielding;
d) Principles and action of fuses, circuit breakers and safety devices – safety precautions; and
e) Use of solid state devices such as audio and radio frequency amplifiers, oscillators, frequency multipliers, mixers, demodulators and switches.

## 76.4 Solid State Device

a) Characteristics of junction diodes, NPN, PNP, and field effect transistors (FETs);
b) The common transistor circuit configurations, emphasizing the biasing arrangements and conditions and input and output impedances;
c) Semiconductor diodes – symbols, elementary principles of semiconductor diodes including “zener” diodes and their electrical characteristics
d) Transistors – characteristics and principles of operation of NPN and PNP transistors, control of output current and voltage when transistors are used as audio frequency and radio frequency amplifiers;
e) Use of solid state devices including integrated circuits in radio equipment such as:
    i) audio and radio frequency amplifiers;
    ii) oscillators (crystal and variable frequency types);
    iii) frequency changers;
    iv) frequency multipliers;
    v) demodulators; and
    vi) switches;
f) Typical power supply circuits, power rectification, single phase, half wave, full wave and bridge connections, smoothing and voltage stabilization systems; and
g) Rectification, smoothing and voltage stabilization arrangements in low voltage supplies.

## 76.5 Receiver

a) Principles of reception of continuous waves, double sideband and single sideband and frequency modulated signals in terms of radio frequency amplification, frequency changing (where appropriate),

demodulation or detection, automatic gain control, audio amplification and the super heterodyne principle of reception;

b) Advantages and disadvantages of high and low intermediate frequencies, adjacent channel and image frequency interference and their avoidance and capture effect;
c) Sensitivity and selectivity;
d) Radio frequency amplifiers, tuned circuit, gain, frequency response and linearity;
e) Audio frequency amplifiers, coupling, emitter follower, phase splitters, negative feedback, decoupling and power amplifiers; and
f) Typical receivers, use of a beat frequency oscillator, characteristics of a single sideband signal and the purpose of a carrier insertion oscillator.

76.6 Transmitter

a) Oscillators used in transmitters – stability of variable frequency and crystal controlled oscillators, their construction and factors affecting stability.
b) Synthesizers – advantages and disadvantages, purpose of each stage with block diagram;
c) Transmitter – stages function of frequency changers, frequency multipliers, high and low power amplifiers (including linear types);
d) Transmitter tuning and adjustment;
e) Methods of keying transmitters for telegraphy – advantages and disadvantages;
f) Voice operated controls; and
g) Methods of modulation and types of emission in circuit use including single sideband and frequency / phase modulation – emissions in the A3E, J3E, F3E and G3E modes, relative advantages, adjustment of level of modulation.

76.7 Propagation and antenna

a) Receiving and transmitting antennas – operation and construction of typical antennas including multi-band and directional types, their directional properties, coupling and matching;
b) Explanation of basic terms – ionosphere, troposphere, atmosphere, field strength, polarization, maximum usable frequency, critical frequency and skip distance;
c) Generation of electromagnetic waves – relationship between electric and magnetic components;
d) Structure of the ionosphere – refracting and reflecting properties of the ionosphere and troposphere, effect of sunspot cycle, winter and summer seasons and day and night on the ionization of the upper atmosphere, effect of varying degrees of ionization on the propagation of electromagnetic waves;
e) Ground waves, ionospheric and tropospheric propagation;
f) Fade out and types of fading – selective, interference, polarization, absorption and skip;
g) Velocity of radio waves in free space, relationship between velocity of propagation, frequency and wavelength, calculation of frequency and wavelength;
h) Antenna feeders – open and coaxial types; and
i) Transmission lines – balanced and unbalanced feeders, elementary principles of propagation of radio waves along transmission lines, velocity ratio and standing waves.

76.8 Interference

a) Spurious emissions, causes and methods of prevention, harmonics of the radiated frequency, direct radiation from frequency determining stages (including synthesizers) and frequency changing stages of a transmitter, parasitic oscillations, excessive sidebands due to over modulation, excessive deviation of FM transmitters, key clicks, methods of suppression;

b) Frequency stability, consequences of poor frequency stability, risks of interference, out of band radiation, causes and methods of elimination;
c) Restriction of audio bandwidth, typical methods and their limitations;
d) Mains borne interference, causes and methods of suppression;
e) Types of filters, low frequency and radio frequency filters;
f) The requirements of frequency checking equipment; and
g) Band planning, purposes and advantages.

76.9 Electromagnetic Compatibility

a) EMC – the ability of a device, equipment or system to function satisfactorily in its electromagnetic environment without introducing intolerable electromagnetic disturbances to anything in that environment. EMC issues that is likely to occur when an amateur station operates in close proximity to other electronic equipment;
b) Equipment used in an amateur station that is capable of generating broadband and narrowband interference;
c) Interfering signal paths – RF, IF, audio and mains borne;
d) Methods of improving the immunity of affected equipment i.e.:
    i) use of toroidal chokes and filters (mains, high pass, low pass, band pass, notch or band stop);
    ii) characteristics of filters, bandwidth, insertion loss and impedance; and
    iii) screening, lead lengths, and fitting ferrite rings and beads and bypass capacitors;
e) Improving station design by:
    i) RF grounding;
    ii) station mains filtering;
    iii) screening;
    iv) monitoring output power and calculation of field strengths;
    v) monitoring output transmission for spurious and harmonic levels including key clicks;

vi) location of antennas and masts;
vii) type and size of antennas; and
viii) use of screened feeder cables, balanced lines and baluns.

f) Method of approach and basic checks required when investigating EMC problems with a neighbour's equipment.

76.10 Measurement

a) Types of instruments used in radio work for the measurement of AC, DC and RF voltages and current, error in measurement, analogue and digital multi-meters and oscilloscopes; and
b) Measurement of:
   i) DC power input to power amplifiers;
   ii) RF power output of power amplifiers; and
   iii) Current at radio frequencies
c) Purposes, operation and use of absorption wave-meters, crystal calibrators, heterodyne wave-meters and frequency counters, relative accuracy;
d) Dummy loads, their purposes, construction and use in adjusting/tuning transmitters;
e) Use of standing wave ratio meters, dip oscillator and etc. and;
f) Setting up and use of an oscilloscope to examine and measure waveform and monitor the depth of modulation.

76.11 General

a) Function and uses of the transformer;
b) Simple explanation of how the decibel notation is used to express ratios of power and voltage and how it may also be used to define power levels;
c) Reasons why equipment to be repaired should be disconnected from the mains supply and capacitors discharged; and
d) Recommended precautions.

## PART E: IMPLEMENTATION

77. This document shall be effective from 1 January 2023 and the Guidelines For Amateur Radio Services in Malaysia, Second Edition, dated 1 March 2012 is hereby revoked.

## Appendix 1: Band Plan for Amateur Radio Service in Malaysia

The band plans for amateur radio service are split into three sections that cover 0.1357 MHz – 29.7 MHz, 50 MHz – 440 MHz and 1.24 GHz – 250 GHz.

Radio amateurs must only operate within the allocated frequency bands as stipulated in the AA. In cases where there is a discrepancy between the Malaysian allocated amateur radio bands and the IARU band plans, the former will take precedence.

### Section 1: 0.1357 MHz - 29.7 MHz

Due to the experimental nature of amateur radio, the emergence of new modes that could result in frequent updates to the band plan and the fact that HF has a worldwide coverage, MCMC does not publish detailed band plans for 0.1357 MHz - 29.7 MHz. Instead, please refer to the latest revision of the IARU Region 3 band plans at https://www.iaru.org/on-the-air/band-plans for specific details such as mode, usage and bandwidth for each of these bands.

The frequencies of 3.815 MHz, 14.270 MHz, 14.275 MHz, 14.293 MHz, 14.303 MHz and 14.325 MHz are common Public Protection and Disaster Relief (PPDR) coordinated frequencies agreed between Brunei Darussalam, Malaysia and Singapore that should be available during emergency situations according to WRC-07, Resolution 647[5] and Malaysian Spectrum Plan.

### Section 2: 50 MHz - 440 MHz

The usage of the 50 MHz – 54 MHz band is detailed in Table 1 and 430 MHz - 440 MHz in Table 2. For detailed usage of the 144 MHz – 148 MHz band, please refer to MCMC SRSP 144 ARS available at MCMC website.

[5] Resolution 647 Radiocommunication aspects, including spectrum-management guidelines, for early warning, disaster prediction, detection, mitigation and relief operations relating to emergencies and disasters

| Frequency (MHz) | Usage |
|---|---|
| 50.0 – 50.1 | CW, Beacons |
| 50.1 – 50.5 | CW, SSB, NB Digi mode, EME |
| 50.110 | DX Calling Channel (SSB) |
| 50.5 – 51.12 | All NB modes (except FM) |
| 51.12 – 52.00 | All Modes, Simplex |
| 52.0 – 52.48 | Repeater Input |
| 52.5 – 52.98 | Repeater Output |
| 53.0 – 54.0 | All Modes, Simplex |

Table 1: Band Plan for 50 MHz – 54 MHz

| Frequency (MHz) | Usage |
|---|---|
| 430.000 – 431.900 | Simplex, All Modes |
| 431.900 – 432.240 | EME |
| 432.240 – 434.000 | Simplex, All Modes |
| 433.500 | National Calling Channel (FM) |
| 434.000 – 435.000 | Repeater Input |
| 435.000 – 438.000 | Satellite Exclusive |
| 438.000 – 439.000 | Simplex, All Modes |
| 438.400 | APRS Spot Frequency (AX.25 1200 bps) |
| 439.000 – 440.000 | Repeater Output |

Table 2: Band Plan for 430 MHZ - 440 MHz

Amateur radio operators are reminded that neighbouring countries which are Indonesia, Brunei Darussalam, Thailand and Singapore still allocated the upper portion of the 50 – 54 MHz band for broadcasting service. Operators, particularly those who are located at bordering towns and states are advised to avoid interfering with broadcasting service when operating on this band.

## Section 3: 1.24 GHz – 251 GHz

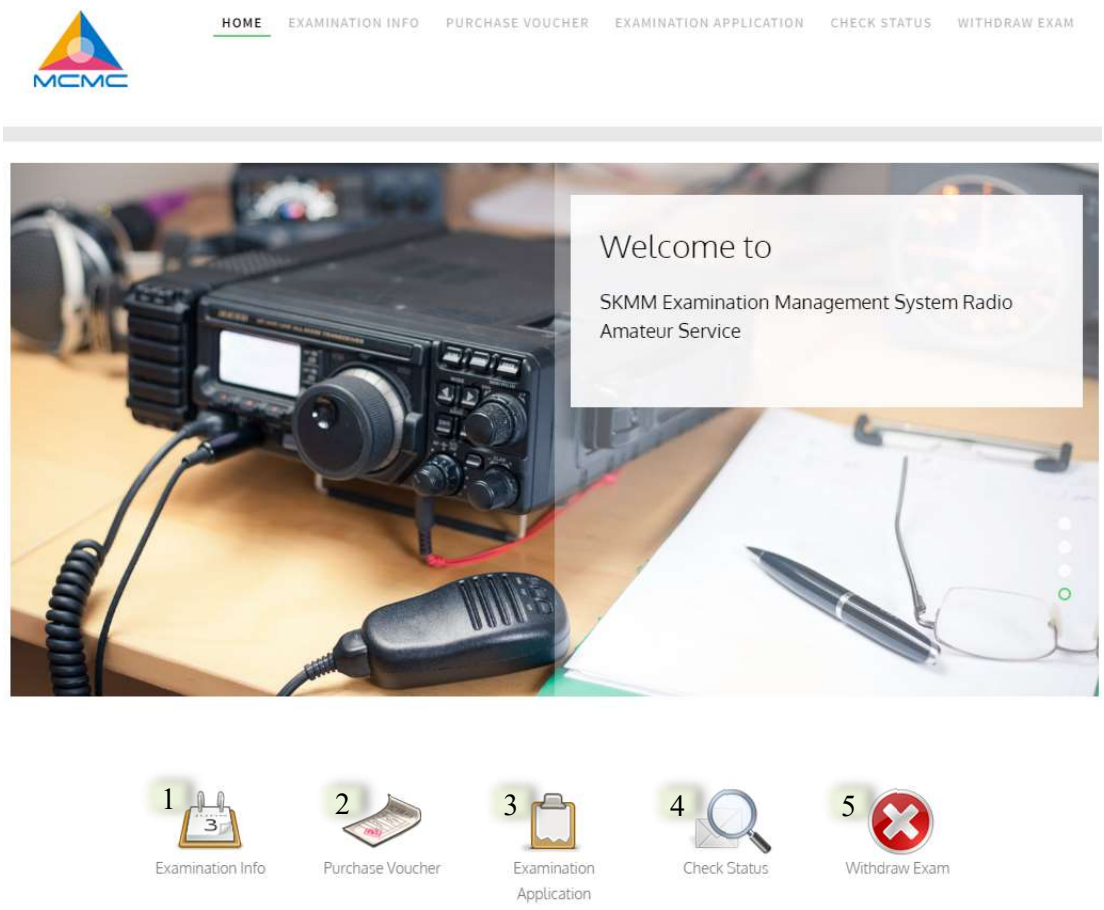
The usage of the 1.24 GHz – 1.30 GHz band is detailed in Table 3. For detailed usage of the frequencies above 2.40 GHz, please refer to the latest revision of the IARU Region 3 Band Plans.

| Frequency (GHz) | Usage |
|---|---|
| 1.240 – 1.246 | ATV Channel 1 |
| 1.246 – 1.248 | Point to Point Link (all mode) |
| 1.248 – 1.252 | Simplex (all mode) |
| 1.252 – 1.258 | ATV Channel 2 |
| 1.258 – 1.264 | ATV Channel 3 |
| 1.264 – 1.268 | Simplex (all mode) |
| 1.268 – 1.270 | Satellite Exclusive (all mode) – Earth-to-Space Direction only |
| 1.270 – 1.274 | Repeater Input |
| 1.274 – 1.290 | Simplex (all mode) |
| 1.290 – 1.294 | Repeater Output |
| 1.2940 – 1.2958 | Simplex (CW/SSB/NB Data) |
| 1.2958 – 1.2962 | EME (all mode) |
| 1.2962 – 1.2964 | Beacons |
| 1.2964 – 1.3000 | Simplex (all mode) |

Table 3: Band Plan for 1.24 GHz – 1.30 GHz

## Appendix 2: SEMS Guide

Icon / Button and Links




You can navigate the web pages through menu links at the top or the icons, which represent the following functions:

1: List of examination dates, times and venues.

2: Link to MCMC online payment system to purchase examination voucher.

3: Online application form to register for the examination.

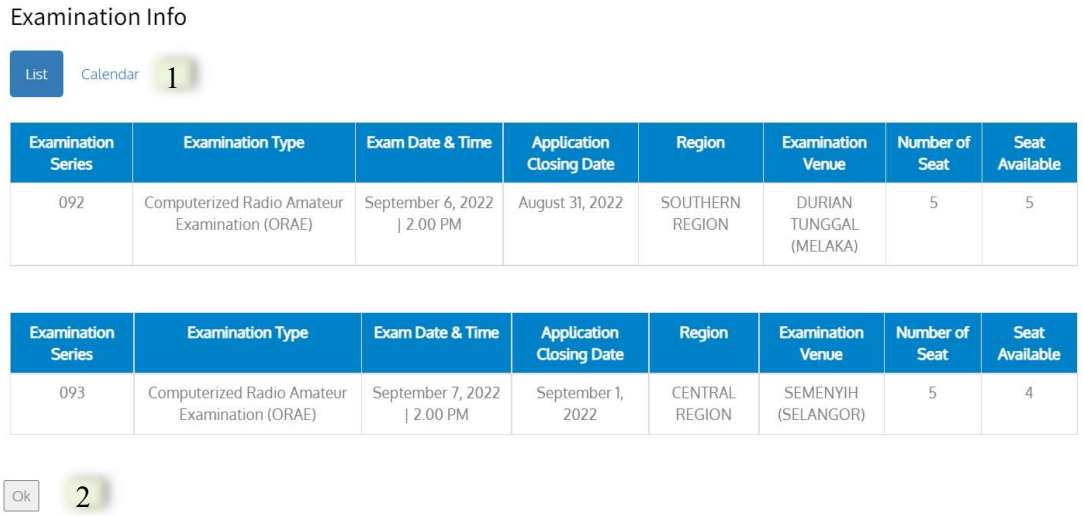
4: Review application status or examination results.

5: Withdrawal of examination application before the closing date.

## Where to Begin?

### Examination Information

Click here to view the available examinations that are currently active and open for application / registration.

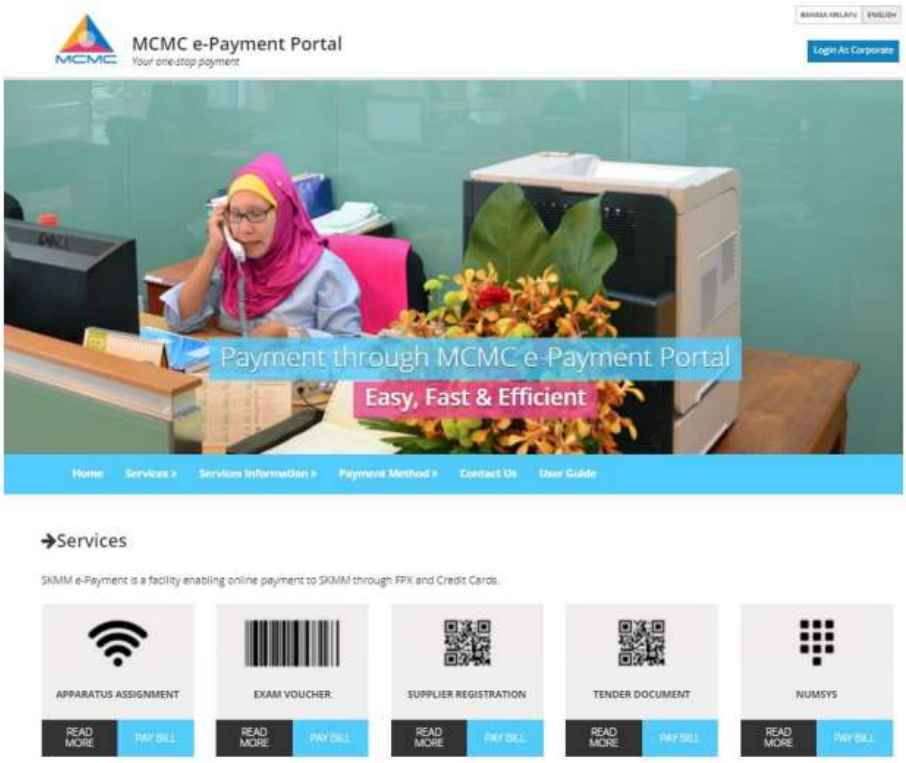


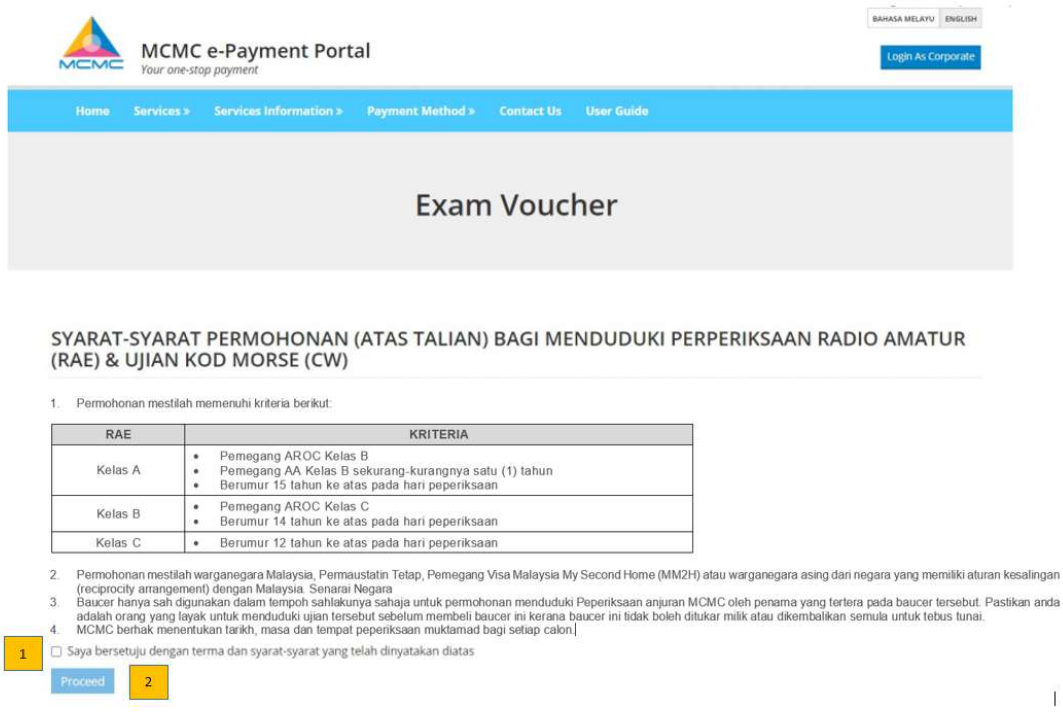

1: Click **Calendar** button to choose calendar view.

2: Click **OK** button to go back to main page.

**Purchase Voucher**

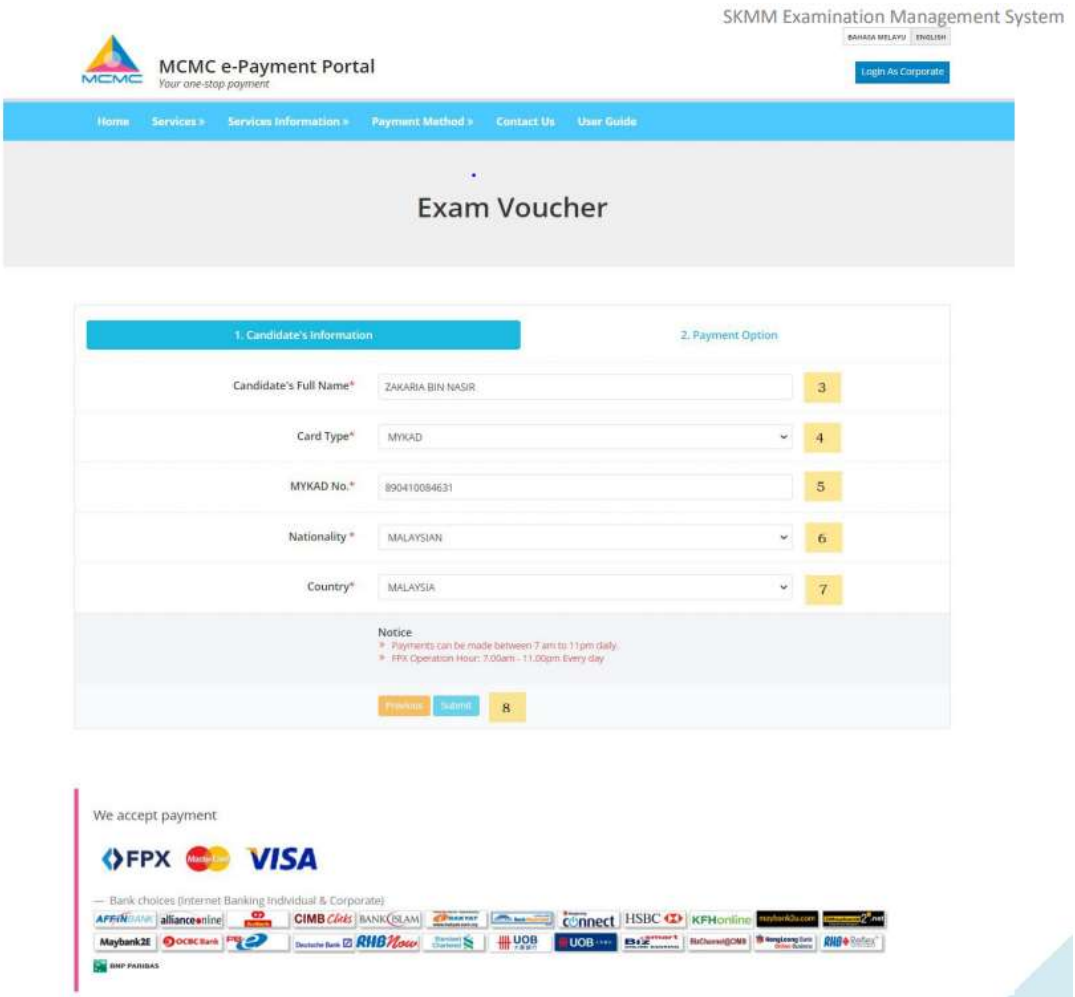
Click here and you will be redirected to MCMC E-payment Portal.






1: Click at the check box if you agree to the terms and conditions

2: Then, click the "**Proceed"** button. You will be directed to the following page




3: Fill up **Full name** *(Candidate's name)*

4: Choose Card Type **MYKAD/PASSPORT**

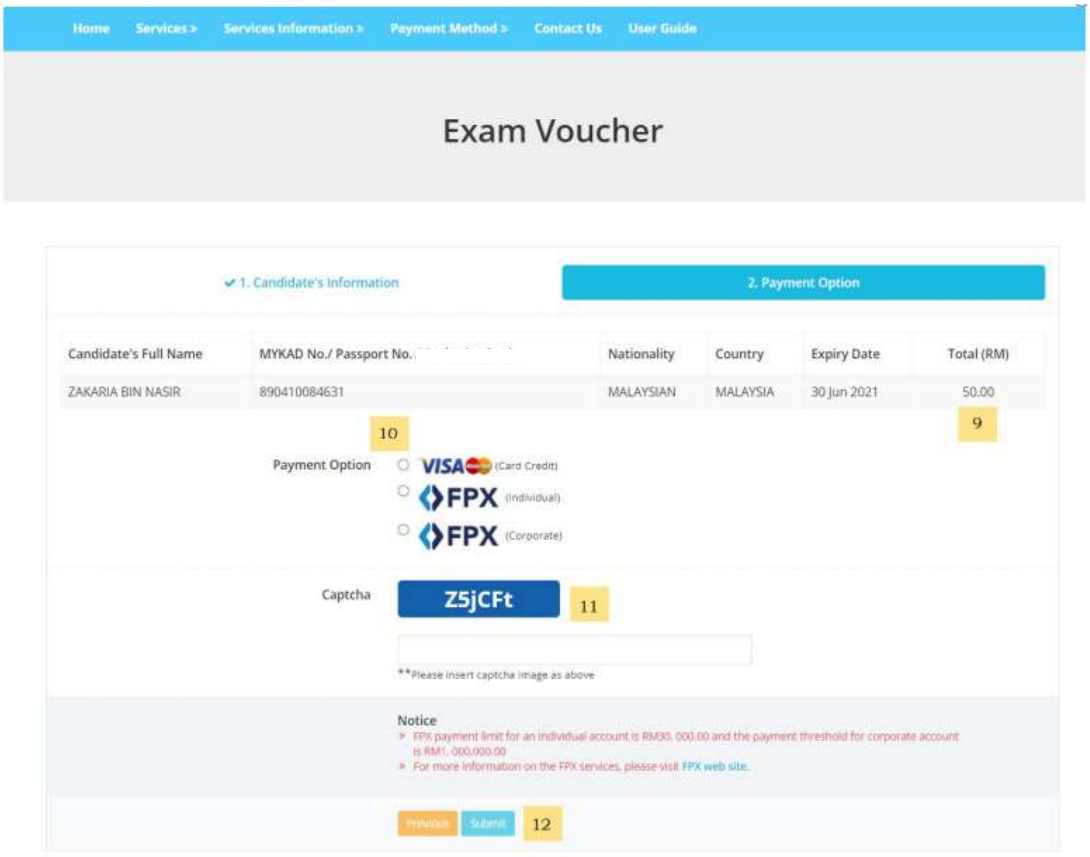
5: Fill up Card No based on Chosen on Card Type

6: Select **Nationality**

7: Select **Country**

8: Click **Submit** button

You will be directed to a confirmation page and please select your examination fee payment options.



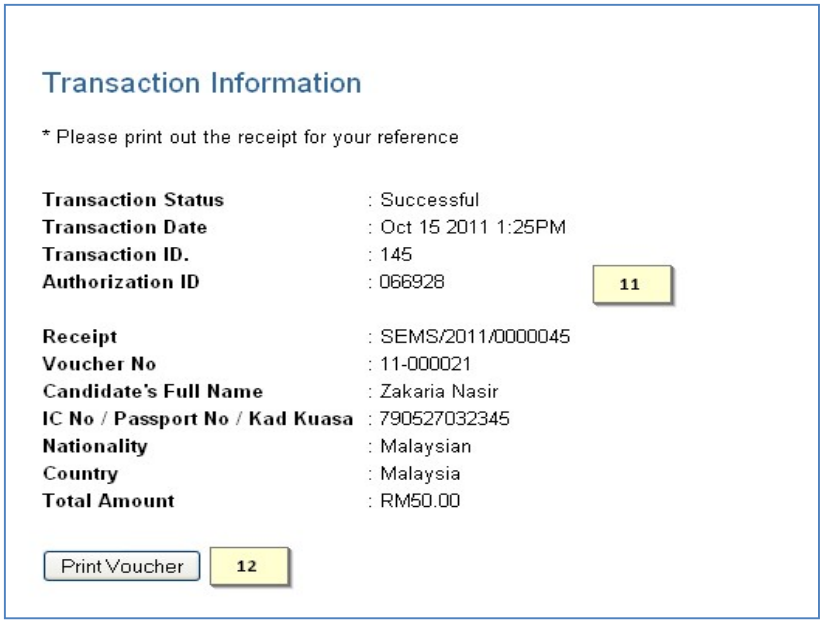

9: Verify the details that has been entered.

10: Select **Payment** option (Credit Card or FPX)

11: Enter the Captcha

12: Click "**Submit"** button

** ***Note:*** Continue the payment process until successfully received your voucher After successful /completion of your online payment transaction, you will be able to view your transaction information and print your voucher:




11: Check your transaction details. In case you spot any error or need further clarification, please contact MCMC.

12: Click "**Print Voucher"** button to print the voucher.


13: Take note of the Examination Voucher Number

14: Check the Examination Voucher details.

***** Note:***

*i) You can only purchase one (1) voucher at a time. You may purchase another voucher if you have used the existing voucher for an examination.*

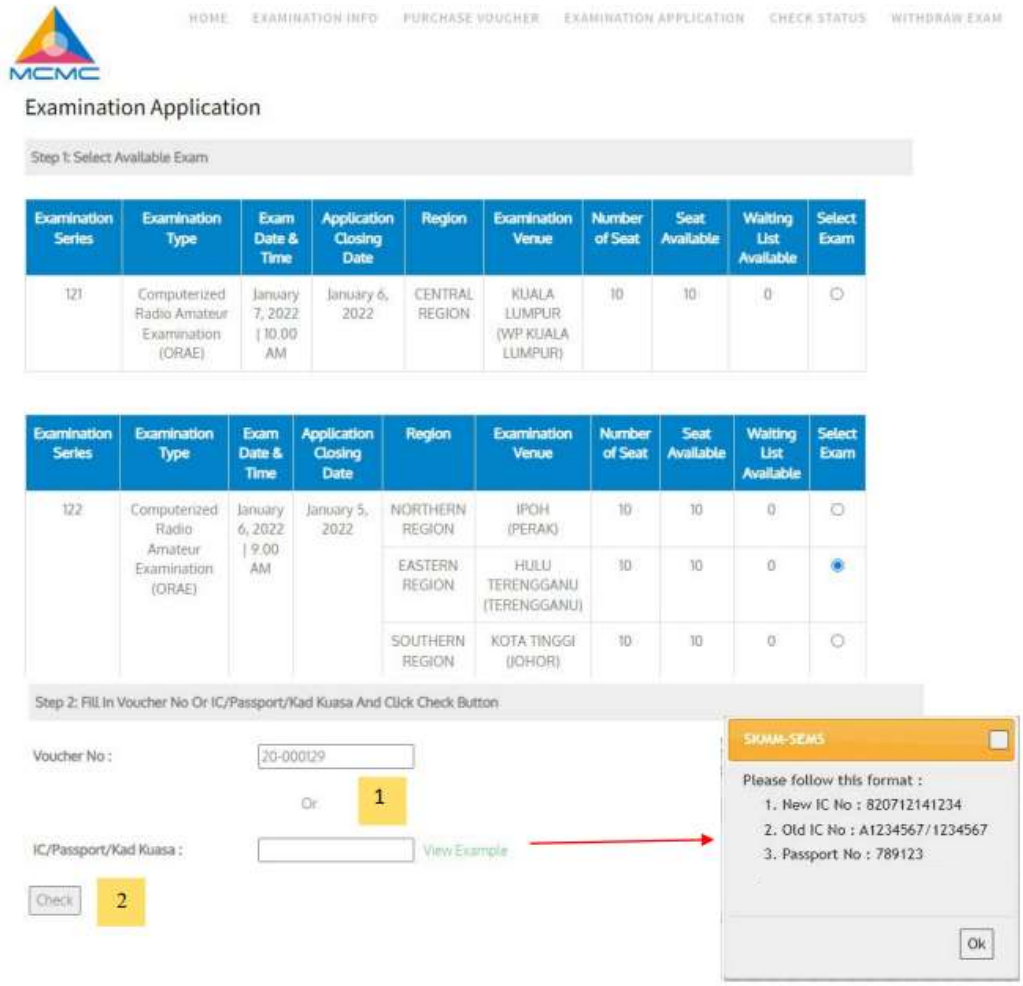
*ii) Your voucher is valid up to 1 year subject to the period of the purchase date. You may refer the table below to determine your voucher validity period.*

| ***Purchased Date*** | ***Expiry Date*** |
|---|---|
| *1 January – 30 June* | *31 December (the same year it was purchased)* |
| *1 July – 31 December* | *30 June (the following year)* |

3

## Examination Application

To apply for an examination, you will need to follow these steps:



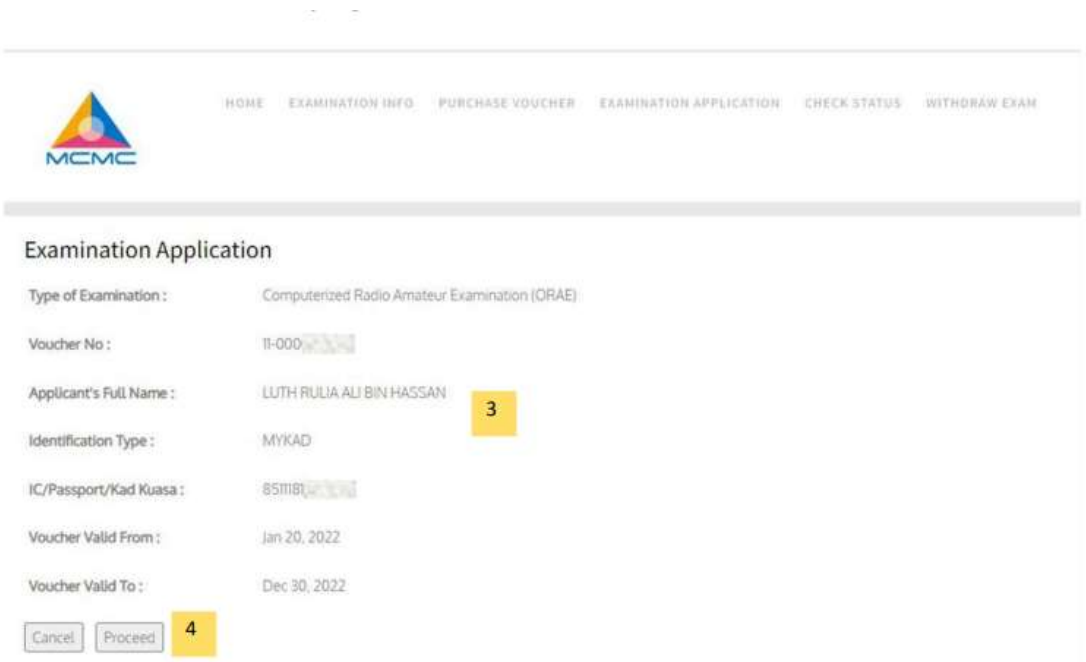

1: Enter **Voucher** number or **Enter your IC / Passport** number

2: Click **CHECK** button to check the status

** ***Note***: *You will not be able to apply for the examination if:*

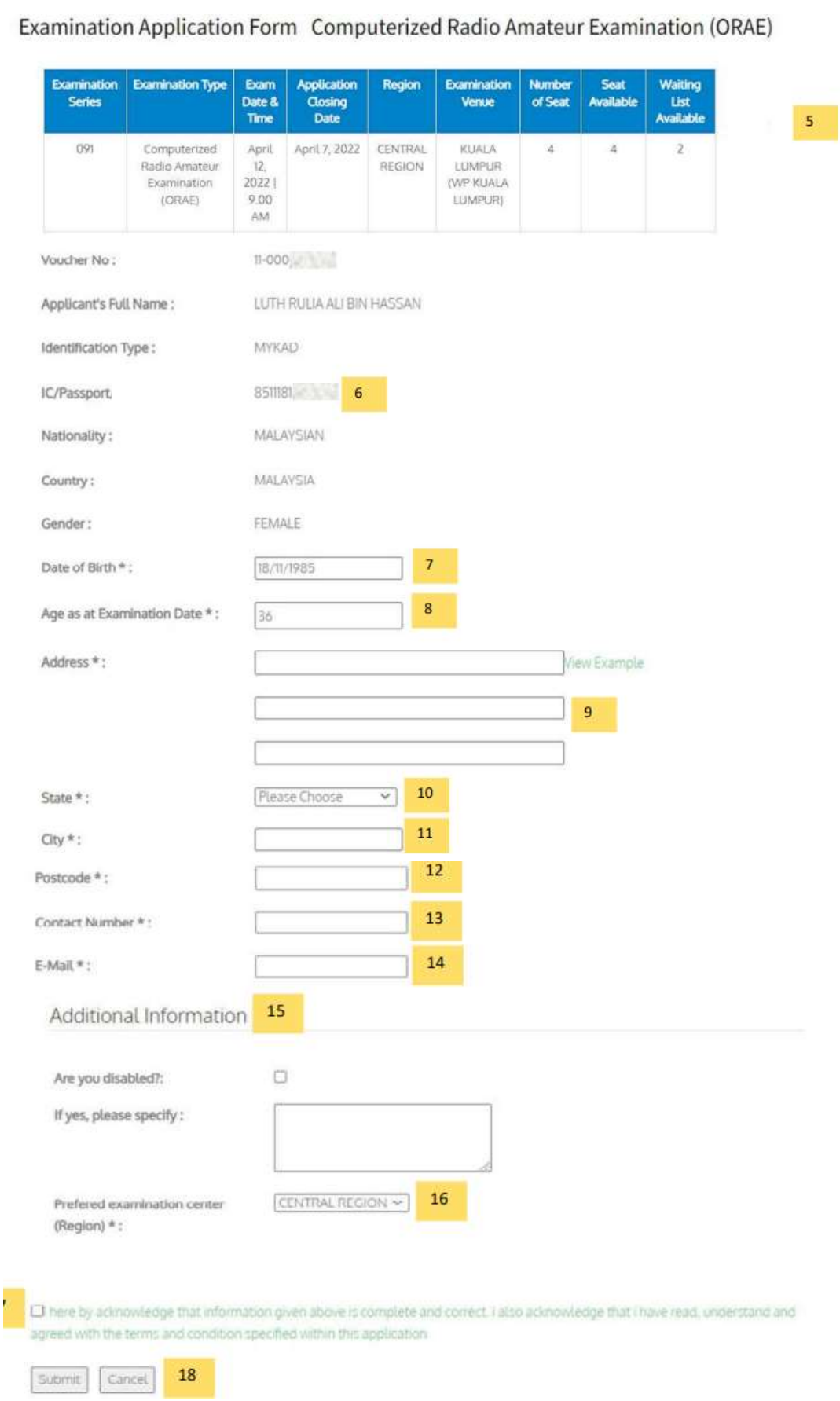
*i. Your Voucher Number is invalid; or*

*ii. You have already registered for the examination*




3: Verify that the information displayed is correct.

4: Click **PROCEED** to continue with your application, or **CANCEL** to go back to the previous page



5: Examination information

6: Applicant information

7: Select **Date of Birth**

8: **Age as at Examination Date** will be auto populated from the date of birth entered

9: Enter your mailing **Address**

10: Select **State**

11: Enter **City**

12: Enter **Postcode**

13: Enter **Contact No**

14: Enter **Email Address**

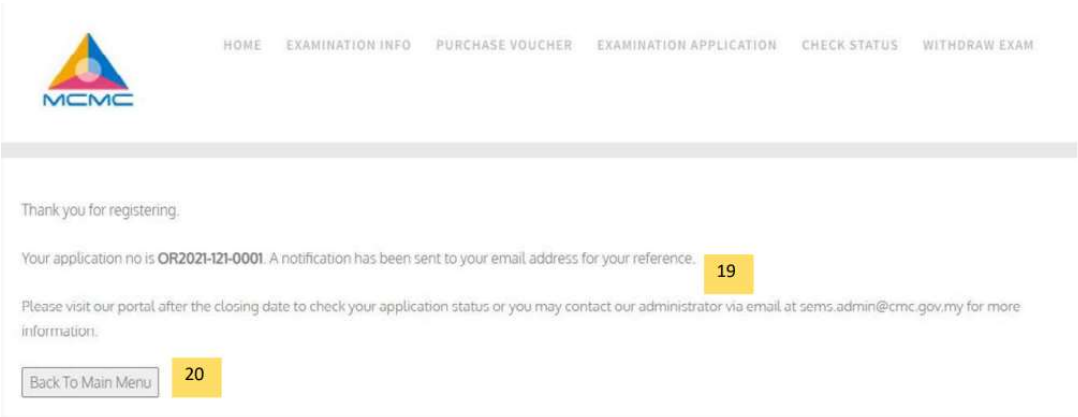
15: Enter any **Additional Information**, if available

16: Select your **Preferred Examination Center (Region)**

17: Click at the checkbox to agree with **Terms and Conditions**

18: Click **SUBMIT** button to proceed or **CANCEL** button to go back to SEMS homepage

** ***Note***: *If all of your information meets the criteria for the selected exam that you are applying, you will be able to proceed with your application. Please read and understand thoroughly the Rules & Regulations for each exam.*




19: For successful application, your **Application No** will be issued

20: Click at **BACK TO MAIN MENU** button to go back to SEMS homepage


**Check Examination Status**

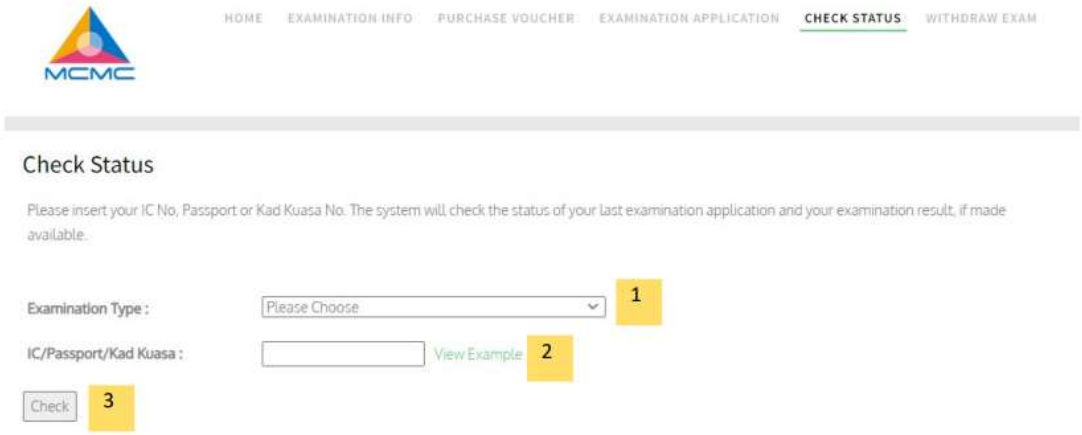
This icon allows you to check your application status.

### i. Examination Application Status

The status of your examination application can be checked after the closing date of the examination application period.

### ii. Examination Result

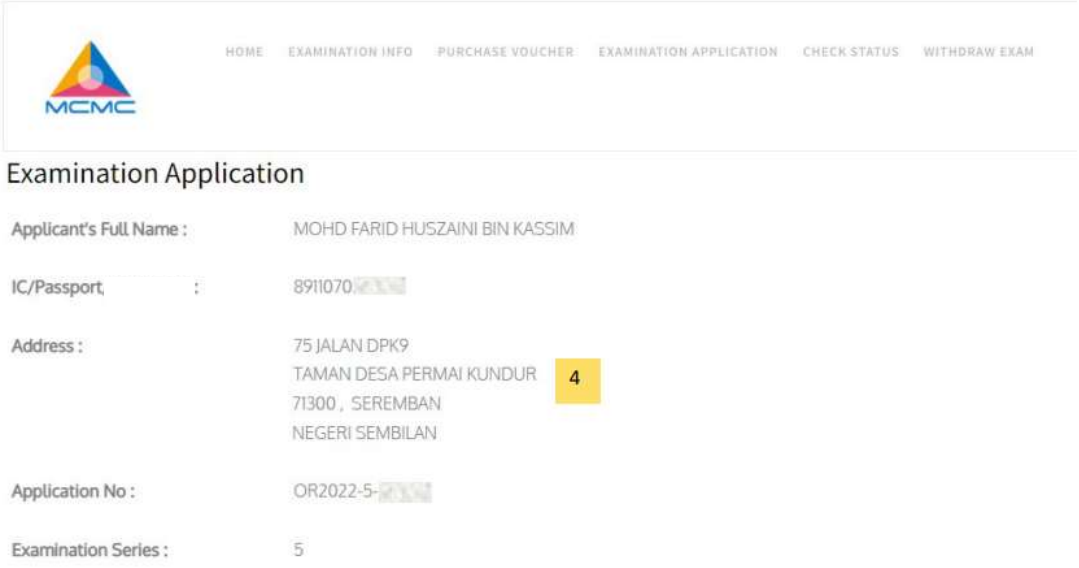
For online examination, the results can be viewed within 7 working days after the examination date.




1: Select **Examination Type**

2: Enter your **Identification No** (IC/Passport)

3: Click at **CHECK** button to view/check your examination status

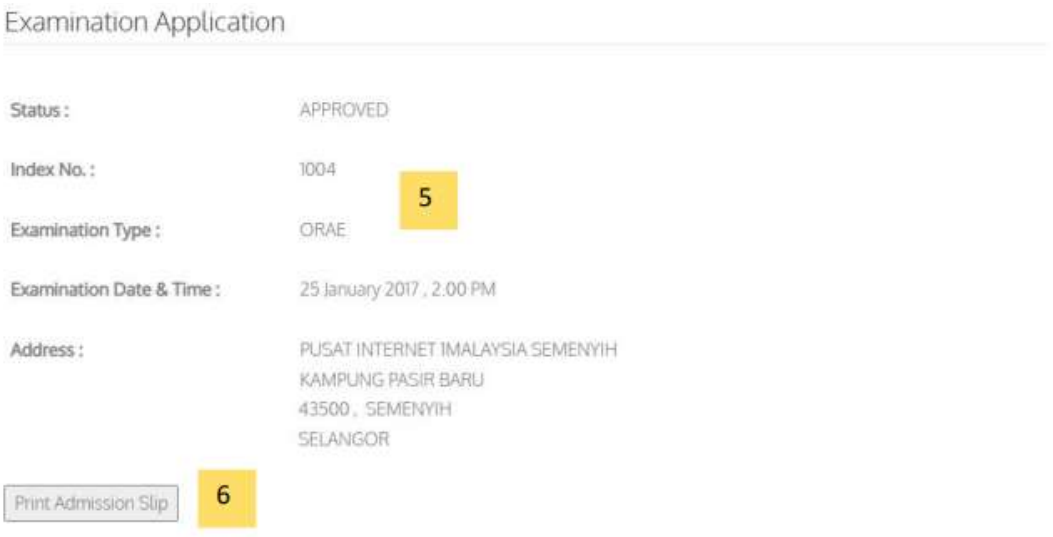


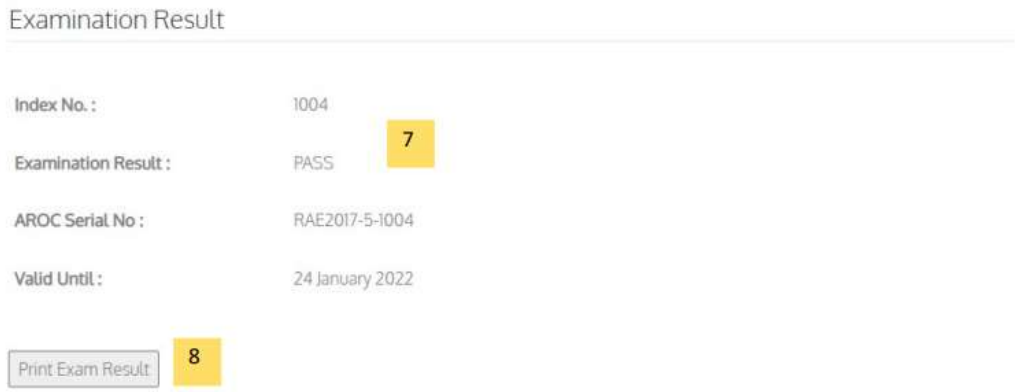

4: Your basic application information will appear here

5: **Examination Application**: Status update on your application (REGISTERED, APPROVED / REJECTED).

** For all approved application, you will be provided with Examination Center Address detail and you would be able to print out your Examination Admission Slip

6: Click at **PRINT ADMISSION SLIP** to print out the examination admission slip






7: Examination Result: You will be prompt with your examination result status if it's made available.

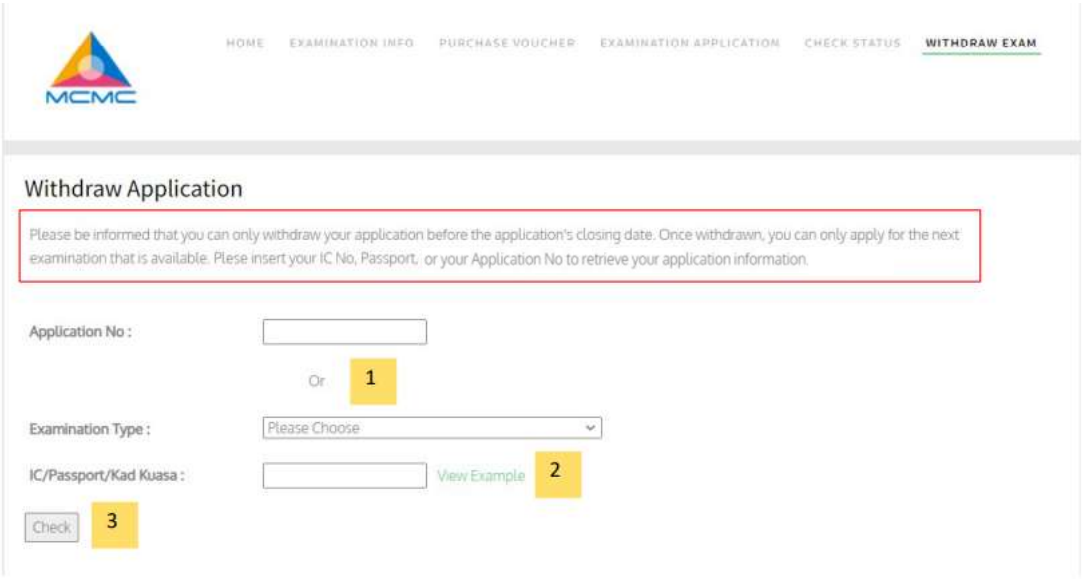
8: Click at **Print Exam Result** to print out the examination result slip


**Examination Withdrawal**

You can withdraw your examination application by clicking this icon. Before you do this, please remember the following terms and rules.

a) You can only withdraw your application before the Application Closing Date; and

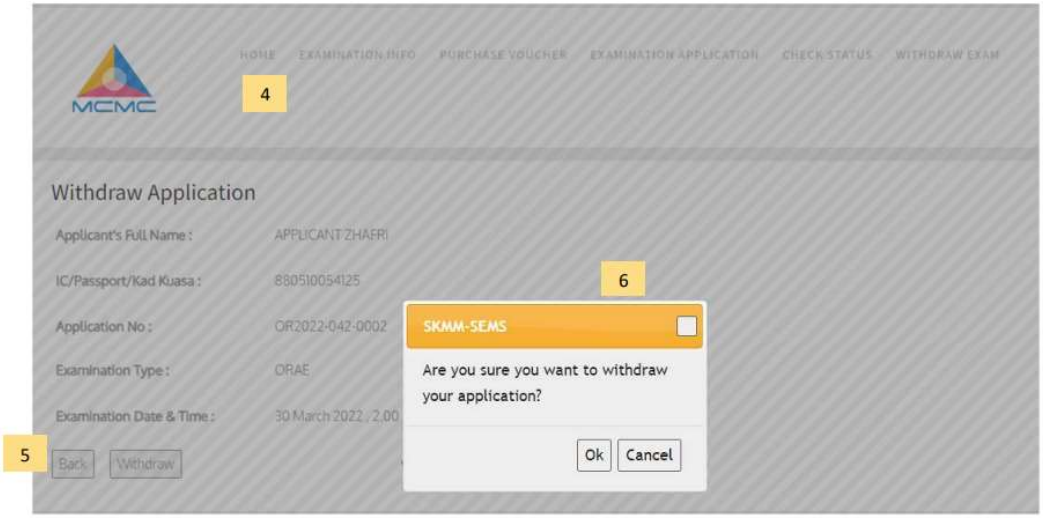
b) Once you have successfully withdrawn your application, you **WILL NOT BE ABLE** to apply for the same examination session again. The system will only allow you to apply for the next examination session.




1: Please read the **Withdraw Application** notification

2: Insert your **Application Number** or select your **Examination Type** & insert your **Identification Number**

3: Click on **CHECK** to proceed with the withdrawal.

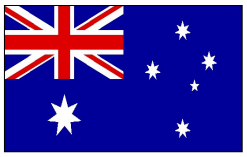



4: Details of your application information will be displayed.

5: Click on **BACK** to go back to previous page, or click on **WITHDRAW** to proceed with your withdrawal.

6: A notification of confirmation will be prompt. Click at **OK** button to proceed or **CANCEL** to cancel the process.

## Appendix 3: List of countries having reciprocal arrangement with Malaysia



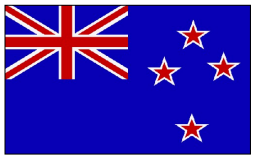
Australia

Mongolia

Cambodia (Kingdom of)

Myanmar (Union of)

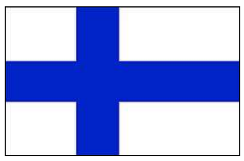
China (People's Republic of)



New Zealand

Czech Republic

Pakistan (Islamic Republic of)



Finland

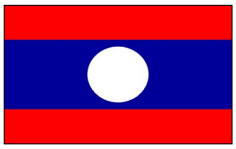
Germany (Federal Republic of)

India (Republic of)

Slovak Republic

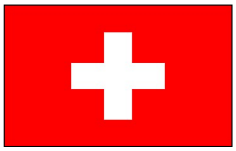
Indonesia (Republic of)

Sri Lanka (Democratic Socialist Republic of)

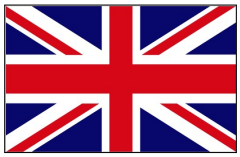


Lao People's Democratic Republic

Sweden



Switzerland (Confederation of)



United Kingdom of Great Britain and Northern Ireland

Vietnam (Socialist Republic of)

Thailand

## Appendix 4: Amateur Radio Frequency, Power and Classes of Emission in Malaysia

<table>
<tr><th rowspan="2">Band</th><th rowspan="2">Frequency (MHz)</th><th rowspan="2">Allocation of Service in Spectrum Plan</th><th colspan="3">Max Power Level[6] (Watts PEP or as otherwise Indicated)</th><th colspan="3">Classes of Emission</th></tr>
<tr><th>Class A</th><th>Class B</th><th>Class C</th><th>Class A</th><th>Class B</th><th>Class C</th></tr>
<tr><td>LF</td><td>0.1357 – 0.1378*</td><td>Secondary</td><td>1W (EIRP)</td><td rowspan="3">No Access</td><td rowspan="8">No Access</td><td rowspan="2">A1A, A2A, J2B, J2D</td><td rowspan="3">No Access</td><td rowspan="8">No Access</td></tr>
<tr><td>MF</td><td>0.4720 – 0.4790*</td><td>Secondary</td><td>5W (EIRP)</td></tr>
<tr><td></td><td>1.800 – 2.000</td><td>Primary</td><td rowspan="2">1000</td><td rowspan="5">A1A, A2A, A2B, A2D, A3C, A3E, D3C, F1D, F1E, F2A, F2B, F2D, F3C, F3F, F8W, G1B, G1D, G1E, H3E, J2B, J2D, J3E, J3F, R3E</td></tr>
<tr><td rowspan="5">HF</td><td>3.500 – 3.900</td><td>Primary</td><td>50</td><td rowspan="4">A1A, A2A, A2B, A2D, A3C, A3E, D3C, F1D, F1E, F2A, F2B, F2D, F3C, F3F, F8W, G1B, G1D, G1E, H3E, J2B, J2D, J3E, J3F, R3E</td></tr>
<tr><td>5.3515 – 5.3665*</td><td>Secondary</td><td>15W (EIRP)</td><td>15W (EIRP)</td></tr>
<tr><td>7.000 – 7.200</td><td>Primary</td><td rowspan="2">1000</td><td rowspan="2">50</td></tr>
<tr><td>10.100 – 10.150*</td><td>Secondary</td><td colspan="3">A1A, A2A, A2B, A2D, A3C, A3E, D3C, F1D, F1E, F2A, F2B, F2D, F3C, F3F, F8W, G1B, G1D, G1E, J2B, J2D</td></tr>
</table>

[6] Measured at the final amplifier output connected to the antenna

| Band | Frequency (MHz) | Allocation of Service in Spectrum Plan | Max Power Level[6] (Watts PEP or as otherwise Indicated) | | | Classes of Emission | | |
|---|---|---|---|---|---|---|---|---|
| | | | Class A | Class B | Class C | Class A | Class B | Class C |
| | 14.000 – 14.350<br>18.068 – 18.168<br>21.000 – 21.450<br>24.890 – 24.990 | Primary | 1000 | 50 | No Access | A1A, A2A, A2B, A2D, A3C, A3E, D3C, F1D, F1E, F2A, F2B, F2D, F3C, F3F, F8W, G1B, G1D, G1E, H3E, J2B, J2D, J3E, J3F, R3E | | |
| | 28.000 – 29.700 | Primary | | | | A1A, A2A, A2B, A2D, A3C, A3E, D3C, F1A, F1B, F1D, F1E, F2A, F2B, F2D, F3E, F3C, F3F, F8W, F7W, G1B, G1D, G1E, H3E, J2B, J2D, J3E, J3F, R3E | | |
| VHF | 50.000 – 54.000 | Primary | 500 | 50 | 25 | A1A, A2A, A2B, A2D, A3C, A3E, D3C, F1A, F1B, F1D, F1E, F2A, F2B, F2D, F3E, F3C, F3F, F8W, F7W, G1B, G1D, G1E, H3E, J2B, J2D, J3E, J3F, R3E | | F1D, F1E, F2D,F3E, FXD, FXE |
| | 144.000 – 148.000 | Primary | 50 | | | A1A, A2A, A2B, A2D, A3C, A3E, D3C, F1A, F1B, F1C, F1D, F1E, F2A, F2B, F2D, F3E, F3C, F3F, F8W, F7W, FXD, FXE, G1B, G1D, G1E, H3E, J2B, J2D, J3E, J3F, R3E | | |
| UHF | 430.000 – 440.000* | Secondary | | | | | | |
| UHF | 1 240.0 – 1 300.0*# | Secondary | 50 | No Access | No Access | A1A, A2A, A2B, A2D, A3C, A3E, D3C, F1A, F1B, F1C, F1D, F1E, F2A, F2B, F2D, F3C, F3E, F3F, F8W, F7W, FXD, FXE, G1B, G1D, G1E, H3E, J3E, J3F, J2B, J2D, R3E | No Access | No Access |
| SHF | 2 400.0 – 2 450.0* | Secondary | | | | | | |
| SHF | 3 300.0 – 3 400.0*# | Secondary | | | | | | |
| SHF | 5 650.0 – 5 850.0*# | Secondary | | | | | | |
| SHF | 10 000.0 – 10 500.0*# | Secondary | | | | | | |

<table>
<tr><th rowspan="2">Band</th><th rowspan="2">Frequency (MHz)</th><th rowspan="2">Allocation of Service in Spectrum Plan</th><th colspan="3">Max Power Level[6] (Watts PEP or as otherwise Indicated)</th><th colspan="3">Classes of Emission</th></tr>
<tr><th>Class A</th><th>Class B</th><th>Class C</th><th>Class A</th><th>Class B</th><th>Class C</th></tr>
<tr><td rowspan="2">SHF</td><td>24 000.0 – 24 050.0</td><td>Primary</td><td rowspan="2">50</td><td rowspan="6">No Access</td><td rowspan="6">No Access</td><td rowspan="10">A1A, A2A, A2B, A2D, A3C, A3E, D3C, F1A, F1B, F1C, F1D, F1E, F2A, F2B, F2D, F3C, F3E, F3F, F8W, F7W, FXD, FXE, G1B, G1D, G1E, H3E, J3E, J3F, J2B, J2D, R3E</td><td rowspan="6">No Access</td><td rowspan="6">No Access</td></tr>
<tr><td>24 050.0 – 24 250.0*</td><td>Secondary</td></tr>
<tr><td rowspan="8">EHF</td><td>47 000.0 – 47 200.0*</td><td>Primary</td><td rowspan="6">50</td></tr>
<tr><td>76 000.0 – 77 500.0*</td><td>Secondary</td></tr>
<tr><td>77 500.0 – 78 000.0</td><td>Primary</td></tr>
<tr><td>78 000.0 – 79 000.0*</td><td>Secondary</td></tr>
<tr><td>79 000.0 – 81 000.0*</td><td>Secondary</td></tr>
<tr><td>81 000.0 – 81 500.0*</td><td>Secondary</td></tr>
<tr><td>241 000.0 – 248 000.0*</td><td>Secondary</td><td rowspan="2">25</td><td rowspan="2">No Access</td><td rowspan="2">No Access</td><td rowspan="2">No Access</td><td rowspan="2">No Access</td></tr>
<tr><td>248 000.0 – 250 000.0</td><td>Primary</td></tr>
</table>

* Use of the frequency band for ARS under secondary allocation shall subject to non-interference and non-protection basis[7] to primary service(s).
# These bands are commercial bands and its usage for ARS shall subject to MCMC's approval on case by case basis to avoid interference to other primary services

Note: Please refer to Appendix 9 of this document for the Class of Emission code.

[7] Non-interference and non-protected basis means that no harmful interference may be caused to any radiocommunications service and that no claim may be made for protection of these devices against harmful interference originating from other radiocommunications services and/or applications.

## Appendix 5: International Phonetic - Alphabet and Figure Code

When it is necessary to spell out callsigns, service abbreviations and words, the following pronunciations shall be used:

| Letter to be transmitted | Code word to be used | Spoken as* |
|---|---|---|
| **A** | Alfa | AL FAH |
| **B** | Bravo | BRAH VOH |
| **C** | Charlie | CHAR LEE or SHAR LEE |
| **D** | Delta | DELL TAH |
| **E** | Echo | ECK OH |
| **F** | Foxtrot | FOKS TROT |
| **G** | Golf | GOLF |
| **H** | Hotel | HOH TELL |
| **I** | India | IN DEE AH |
| **J** | Juliett | JEW LEE ETT |
| **K** | Kilo | KEY LOH |
| **L** | Lima | LEE MAH |
| **M** | Mike | MIKE |
| **N** | November | NO VEM BER |
| **O** | Oscar | OSS CAH |
| **P** | Papa | PAH PAH |
| **Q** | Quebec | KEH BECK |
| **R** | Romeo | ROW ME OH |
| **S** | Sierra | SEE AIR RAH |
| **T** | Tango | TANG GO |
| **U** | Uniform | YOU NEE FORM or OO NEE FORM |
| **V** | Victor | VIK TAH |
| **W** | Whiskey | WISS KEY |
| **X** | X-ray | ECKS RAY |
| **Y** | Yankee | YANG KEY |
| **Z** | Zulu | ZOO LOO |

***** The syllables to be emphasised are underlined.

When it is necessary to spell out figures or marks, the following pronunciations shall be used:

| Letter to be transmitted | Code word to be used | Spoken as ** |
|---|---|---|
| **0** | Nadazero | NAH-DAH-ZAY-ROH |
| **1** | Unaone | OO-NAH-WUN |
| **2** | Bissotwo | BEES-SOH-TOO |
| **3** | Terrathree | TAY-RAH-TREE |
| **4** | Kartefour | KAR-TAY-FOWER |
| **5** | Pantafive | PAN-TAH-FIVE |
| **6** | Soxisix | SOK-SEE-SIX |
| **7** | Setteseven | SAY-TAY-SEVEN |
| **8** | Oktoeight | OK-TOH-AIT |
| **9** | Novenine | NO-VAY-NINER |
| **Decimal point** | Decimal | DAY-SEE-MAL |
| **Full stop** | Stop | STOP |

****** Each syllable should be equally emphasized.

## Appendix 6: The RST System

| **Readability** | **Signal Strength** | **Tone** |
|---|---|---|
| 1 - Unreadable | 1 - Faint, signals barely | 1 - Extremely rough hissing note |
| 2 - Barely readable, occasional words distinguishable | 2 - Very weak signals | 2 - Very rough AC note, no trace of musicality |
| 3 - Readable with considerable difficulty | 3 - Weak signals | 3 - Rough. Low-pitched AC note, slightly musical |
| 4 - Readable with practically no difficulty | 4 - Fair signals | 4 - Rather rough AC note, moderately musical |
| 5 - Perfectly readable | 5 - Fairly good signals | 5 - Musically modulated note |
| | 6 - Good signals | 6 - Modulated note, slight trace of whistle |
| | 7 - Moderately strong signals | 7 - Near DC note, smooth ripple |
| | 8 - Strong signals | 8 - Good DC note, just trace of ripple |
| | 9 - Extremely strong signals | 9 - Purest DC note |

## Appendix 7: The International Q Code

Below are some of the International Q Codes commonly used in the Amateur Service with their meanings, when used as a question and as a statement. The Q signal procedurals are for use in Morse communications, but some have been adopted into voice and data usage as well, with similar meanings.

| | | |
|---|---|---|
| QRG? | : | Will you tell me my exact frequency (or that of …….)?<br>Your exact frequency (or that of …….) is..... KHz. |
| QRH? | : | Does my frequency vary?<br>Your frequency varies. |
| QRI? | : | How/What is the tone of my transmission?<br>The tone of your transmission is..... (1 = good, 2 = variable, 3 = bad). |
| QRK? | : | What is the intelligibility of my signals (or those of ……)?<br>The intelligibility of your signals (or those of ……) is..... (1 = bad, 2 = poor, 3 = fair, 4 = good, 5 = excellent). |
| QRL?<br>*Voice Usage* | : | Are you (or is the frequency) busy?<br>I am (or the frequency is) busy (with…….); please do not interfere.<br>*(**QRL** is never spoken but it is customary to say "Is this frequency in use?" before making a call on an apparently-free frequency)* |
| QRM?<br>*Voice Usage* | : | Is my transmission being interfered with?<br>Your transmission is being interfered with ..... (1 = nil, 2 = slightly, 3 = moderately, 4 = severely, 5 = extremely)<br>*(**QRM** is sometimes spoken as "you're getting QRMd" or "there's a lot of QRM" to indicate that the frequency is very congested)* |
| QRN ? | : | Are you troubled by static?<br>I am troubled by static ..... (1 = nil, 2 = slightly, 3 = moderately, 4 = severely, 5 = extremely) |
| QRO? | : | Shall I increase transmitter (output) power?<br>Increase transmitter (output) power. |
| QRP?<br>*Voice Usage* | : | Shall I decrease transmitter (output) power?<br>Decrease transmitter (output) power.<br>*(**QRP** has a more absolute "low power operation" meaning rather than a relative "please lower your power" one. "Operating QRP" refers to the sport of trying to make contacts with as low a power as possible, usually 5 watts or less)* |
| QRQ? | : | Shall I send faster?<br>Send faster (..... words per minute). |
| QRS? | : | Shall I send more slowly?<br>Send more slowly (..... words per minute). |

| | | |
|---|---|---|
| QRT? | : | Shall I stop sending?<br>Stop sending / I am leaving the air. |
| *Voice Usage* | | *(**QRT** is sometimes used to indicate that one is signing off. "I'm going QRT now")* |
| QRU? | : | Have you anything for me?<br>I have nothing for you. |
| QRV? | : | Are you ready?<br>I am ready. |
| QRW? | : | Shall I inform …….. that you are calling on ….. KHz?<br>Please inform …….. that I am calling on ….. KHz? |
| QRX? | : | When will you call me again?<br>Standby / I will call you again at .....hours on..... KHz. |
| QRZ? | : | Who is calling me? |
| *Voice* | | You are being called by ..... on..... KHz. |
| *Usage* | | ***(QRZ** is always spoken "Q R Zed" and is used when one catches part of a call, particularly on an FM repeater, but can't tell which station is being called. If I hear a friend of mine call someone, and it might be me, but I'm not sure, I might say "QRZ for 9M2XXX?" It can be used this way whenever there is doubt about whom the calling station is calling or what they want)* |
| QSA? | : | What is the strength of my signals (or those of ……)?<br>The strength of your signals (or those of ……) is..... (1 = barely perceptible, 2 = weak, 3 = fairly good/okay, 4 = good, 5 = very good). |
| QSB? | : | Are my signals fading?<br>Your signals are fading. |
| QSD? | : | Are my signals mutilated / Is my keying defective?<br>Your signals are mutilated / Your keying is defective. |
| QSG? | : | Shall I send ……. messages at a time? How many messages should I send at a time?<br>Send …….. messages at a time. |
| QSK? | : | Can you hear me between your signals and if so may I break in on your transmissions?<br>I can hear you between my signals; break in on my transmissions. |

| | | |
|---|---|---|
| QSL? | : | Can you acknowledge receipt? |
| *Voice* | | I acknowledge receipt. |
| *Usage* | | *(**QSL** when spoken either as a question or a statement has much of the meaning of "okay" or "I understand" or "I will comply." "I'll meet you later on at the house, QSL?" When communication quality is poor, "QSL" is sometimes repeated three or more times to indicate that the message was indeed received)* |
| QSM? | : | Shall I repeat?<br>Repeat the last message you sent me (or message number …….). |
| QSN? | : | Did you hear me (or ……) on ……KHz?<br>I heard you me (or ……) on ……KHz |
| QSO? | : | Can you communicate with ...….directly or by relay? |
| *Voice* | | I can communicate with ...….directly (or via relay ……) |
| *Usage* | | *(**QSO** when spoken simply means "2-way contact." "Eyeball QSO" refers to a face-to-face meeting)* |
| QSP? | : | Will you relay to.....?<br>I will relay to …..... |
| QST? | : | Attention all radio amateurs: |
| *Voice* | | ***(QST** is usually used to introduce a broadcast message to all* |
| *Usage* | | *amateurs (the only type of one-way message allowed on amateur radio). "The following is a QST:"* |
| QSU? | : | Shall I send or reply on this frequency (or on ……. KHz)?<br>Send or reply on this frequency (or on ……. KHz) |
| QSV? | : | Shall I send a series of V's for adjustment on this frequency?<br>Send a series of V's. |
| QSX? | : | Will you listen to …… on …… KHz?<br>I am listening to …… on …… KHz. |
| QSY? | : | Shall I (Will you) change frequency (to ……..)? |
| *Voice* | | I am changing frequency (to …….) |
| *Usage* | | ***(QSY** when spoken is either a suggestion or an announcement that one is changing frequencies. "QSY simplex?" is a suggestion that the two conversing parties leave the repeater to another non-repeater frequency in order to free up the repeater resource. Signing off using "this is KF9FF, QSY" conveys that I cannot be reached on the current frequency any longer (lest anyone try).* |
| QSZ? | : | Shall I send each word or group more than once?<br>Send each word or group twice. |
| QTA? | : | Shall I cancel message number ……..?<br>Cancel message number ……. . |

| | | |
|---|---|---|
| QTB? | : | Do you agree with my counting of words?<br>I disagree with your count of words. I will repeat the first letter of each word in the message. |
| QTH? | : | What is your location? |
| *Voice* | | My location is..... |
| *Usage* | | ***(QTH** has the identical meaning as in Morse. "What's your QTH?" "I'm nearly home").* |
| QTR? | : | What is the correct time?<br>The correct time is ..... hours. |

## Appendix 8: Abbreviation Used for Continuous Wave and Digital Operations

| Abbreviation | Meaning |
|---|---|
| AA | After all |
| AB | All before |
| AB | About |
| ADR | Address |
| AGN | Again |
| ANT | Antenna |
| AR K | End of transmission |
| AR VA | Final end of transmission |
| AS | Wait |
| BCI | Broadcast interference |
| BCL | Broadcast listener |
| BK | Break, I wish to interrupt a transmission in progress; break in; break me |
| BN | All between; been |
| BUG | Semi-automatic key |
| B4 | Before |
| C | Yes |
| CFM | I confirm, confirm |
| CK | Check |
| CL | I'm closing all my station; call |
| CLD | Called |
| CLG | Calling |
| CPY | Copy |
| CPI | Copy |
| CQ* | General call; calling any station |
| CS | Call sign |
| CT | Commence traffic |
| CUAGN | See you again |
| CUD | Could |
| CUL | See you later |
| CW* | Continuous wave (i.e. radiotelegraph) |
| DE | From |
| DLD | Delivered |

| Abbreviation | Meaning |
|---|---|
| DLVD | Delivered |
| DR | Dear |
| DX* | Distance, foreign countries |
| ES | And; & |
| FB | Fine business, excellent |
| FER | For |
| FM* | Frequency modulation, from |
| GA | Go ahead (or resume sending) |
| GB | Goodbye |
| GBA | Give better address |
| GE | Good evening |
| GG | Going; grounded grid |
| GM | Good morning |
| GN | Good night |
| GND | Ground |
| GUD | Good |
| HI* | The telegraphic laugh; high |
| HPE | Hope |
| HR | Here; hear; hour |
| HV | Have |
| HVE | Have |
| HW | How |
| K | Go ahead |
| KN | Specific station, go ahead |
| LID | Poor operator |
| MA, MILS | Milliamperes |
| MNI | Many |
| MSG | Message; prefix to radiogram |
| N | No; north |
| NCS | Net control station |
| ND | Nothing doing |
| NIL | Nothing, I've nothing for you |
| NM | No more |
| NR | Number |

| Abbreviation | Meaning |
|---|---|
| NW | Now; I resume transmission |
| OB | Old boy |
| OC | Old chap |
| OG | Old girl |
| OM | Old man |
| OP | Operator |
| OPR | Operator |
| OT | Old timer; old top |
| PBL | Preamble |
| PSE | Please |
| PLSE | Please |
| PWR | Power |
| PX | Press |
| R | Received as transmitted (also used as a decimal point e.g. IR6) |
| RCD | Received |
| RCVR (RX) | Receiver |
| REF | Refer to; referring to |
| RFI | Radio frequency interference |
| RIG* | Station equipment |
| RPRT | Report |
| REPT | Report |
| RPT | Repeat; I repeat; report |
| RTT | Radio-teletype |
| RTTY | Radio-teletype |
| RX* | Receiver |
| SA | Say |
| SASE | Self-addressed, stamped envelope |
| SED | Said |
| SIG | Signal; signature |
| SINE | Operator’s personal initials; nickname |
| SKED | Schedule |
| SRI | Sorry |
| SSB | Single sideband |

| Abbreviation | Meaning |
|---|---|
| SUM | Some |
| SVC | Service; prefix to service message |
| T | Zero (0) |
| TFC | Traffic |
| THO | Though |
| THRU | Through |
| THRO | Through |
| TMW | Tomorrow |
| TNX | Thanks |
| TKS | Thanks |
| TKU | Thank you |
| TT | That |
| TU | Thank you |
| TVI | Television interference |
| TX&* | Transmitter |
| TXT | Text |
| U | You |
| UR | Your; you're |
| URS | Yours |
| UTC | Coordinated Universal Time; this is effectively the same as GMT. |
| VFO | Variable frequency oscillator |
| VY | Very |
| WA | Word after |
| WB | Word before |
| WD-WDS | Word: words |
| WID | With |
| WKD | Worked |
| WKG | Working |
| WL | Well; Will |
| WUD | Would |
| WX* | Weather |
| X | Press |
| XCVR | Receiver |

| Abbreviation | Meaning |
|---|---|
| XMTR (TX) | Transmitter |
| XTAL | Crystal |
| XYL* (YF) | Wife |
| YL* | Young Lady |
| 73* | Regards |
| 88* | Love and Kisses |

Codes in asterisk (*) are to a limited extend, adopted and accepted in the phone band.

## Appendix 9: Class of Emission Code

Emissions are classified and symbolized according to their basic characteristics. The basic characteristics are:

a) First symbol – type of modulation of the main carrier;
b) Second symbol – nature of signal(s) modulating the main carrier; and
c) Third symbol – type of information to be transmitted.

### A. Basic characteristic

### First symbol – Type of modulation of the main carrier

| Symbol | Type of modulation of the main carrier |
|---|---|
| N | Emission of an un-modulated carrier |
| | Emission in which the main carrier is amplitude modulated (including cases where sub-carriers are angle modulated): |
| A | i) Double-sideband |
| H | ii) Single-sideband, full carrier |
| R | iii) Single-sideband, reduced or variable level carrier |
| J | iv) Single-sideband, suppressed carrier |
| B | v) Independent sidebands |
| C | vi) Vestigial sideband |
| | Emission in which the main carrier is angle-modulated: |
| F | i) Frequency modulation |
| G | ii) Phase modulation |
| D | Emission in which the main carrier is amplitude and angle modulated either simultaneously or in a pre-established sequence |
| | Emission of pulses: |
| P | i) Sequence of un-modulated pulses |
| | A sequence of pulses: |
| K | i) modulated in amplitude |
| L | ii) modulated in width/duration |
| M | iii) modulated in position/phase |

| Symbol | Type of modulation of the main carrier |
|---|---|
| Q | iv) in which the carrier is angle-modulated during the angle period of the pulse |
| V | v) which is a combination of the foregoing or is produced by other means |
| W | Cases not covered above, in which an emission consists of the main carrier modulated, either simultaneously or in a pre-established sequence, in a combination of two or more of the following modes: amplitude, angle, pulse |
| X | Cases not otherwise covered |

**Second symbol – Nature of signal(s) modulating the main carrier**

| Symbol | Nature of signal(s) modulating the main carrier |
|---|---|
| 0 | No modulating signal |
| 1 | A single channel containing quantized or digital information without the use of a modulating sub-carrier |
| 2 | A single channel containing quantized or digital information with the use of a modulating sub-carrier |
| 3 | A single channel containing analogue information |
| 7 | Two or more channels containing quantized or digital information |
| 8 | Two or more channels containing analogue information |
| 9 | Composite system with one or more channels containing quantized or digital information, together with one or more channels containing analogue information |
| X | Cases not otherwise covered |

**Third symbol – Type of information to be transmitted**

| Symbol | Type of information to be transmitted |
|---|---|
| N | No information transmitted |
| A | Telegraphy – for aural reception |
| B | Telegraphy – for automatic reception |
| C | Facsimile |
| D | Data transmission, telemetry, tele-command |
| E | Telephony (including sound broadcasting) |

| | |
|---|---|
| F | Television (video) |
| W | Combination of the above |
| X | Cases not otherwise covered |

**Note:** *The term "Information" does not represent a signal of a constant unvarying nature, as provided by standard frequency emissions, C and pulse radars and etc.*

**B. Description of Emission (Optional)**

These are:

a) Fourth character – details of signal(s)
b) Fifth character – nature of multiplexing

Where the fourth or fifth characters are not used please indicate on the form by a (-) where each character would otherwise appear.

**Fourth character – Details of signal(s)**

| **Symbol** | **Details of signal(s)** |
|---|---|
| A | Two-condition code with elements of differing numbers and/or durations |
| B | Two-condition code without elements of the same number and duration with error correction |
| C | Two-condition code with elements of the same number and duration with error correction |
| D | Four-condition code in which each condition represents a signal element (of one or more bits) |
| E | Multi-condition code in which each condition represents a signal element (of one or more bits) |
| F | Multi-condition code in which each condition or combination of conditions represents a character |
| G | Sound of broadcasting quality (monophonic) |
| H | Sound of broadcasting quality (stereophonic or quadraphonic) |
| J | Sound of commercial quality (excluding categories given in K and L below) |
| K | Sound of commercial quality with the use of frequency inversion or band splitting |
| L | Sound of commercial quality with separate frequency modulated signals to control the level of demodulated signal |
| M | Monochrome television (video only) |

| Symbol | Details of signal(s) |
|---|---|
| N | Colour television (video only) |
| W | Combination of the above |
| X | Cases not otherwise covered |

**Fifth character – Nature of multiplexing**

| Symbol | Nature of multiplexing |
|---|---|
| N | No multiplexing employed |
| C | Code Division Multiplex (This includes bandwidth expansion techniques) |
| F | Frequency Division Multiplex |
| T | Time Division Multiplex |
| W | Combination of Frequency Division Multiplex and Time Division Multiplex |
| X | Other types of multiplexing |

**Note:**

Definitions in this document are based on the Radio Regulations published by the ITU.

## Appendix 10: Sample of the Amateur Station Apparatus Assignment Application Form

RSAD/AAP-F07

**Suruhanjaya Komunikasi dan Multimedia Malaysia**
*Malaysian Communications and Multimedia Commission*
MCMC Tower 1, Jalan Impact, Cyber 6
63000 Cyberjaya, Selangor Darul Ehsan
Tel: 6 03-86888000 Fax: 6 03-86881000 http://www.mcmc.gov.my

**APPLICATION FOR APPARATUS ASSIGNMENT(S)**
**(SERVICE: AMATEUR STATION)**

| | | | | | | |
|---|---|---|---|---|---|---|
| ☐ New apparatus | ☐ Type of apparatus (Please refer to instructions): | | | | | Application Fee **RM60** per application |
| ☐ Existing apparatus | Client ID no.: | | Assignment no.(s): | | Callsign: | |

*To be used when applying for amateur station apparatus assignment(s) except for amateur repeater station*

**1. CLIENT INFORMATION**

| | | | | | |
|---|---|---|---|---|---|
| Organisation name: | | | | | |
| Applicant name: | | | | | |
| Business / Residential address: | | | | | |
| Town / State: | | | | Postal code: | |
| Billing address: (if different from above) | | | | | |
| | | | | Postal code: | |
| E-Mail: | Telephone: | | Fax: | Occupation: | |
| Passport / IC No.: | | Date of birth: | | Place of birth: | |
| Citizenship: | ☐ Malaysian | ☐ Commonwealth | ☐ Other, please specify _____ | | |

**2. APPLICATION INFORMATION**

| | |
|---|---|
| Class (A/B) | |

**3. GEOGRAPHIC AREA INFORMATION**

| | | | |
|---|---|---|---|
| Location name: *If mobile, enter the vehicle registration no.* | | | |
| Site address: | | | |
| Town / State: | | Postal code: | |
| Apparatus name: | | Ground elevation: *(metres above mean sea level)* | |
| Number of mobiles / hand-carried portables: | | Hand-carried portable (Y/N): | |
| Geographic area of operations: | | Coverage radius (km): | |
| Centre of area of operations Latitude (°N): | __ ° __ ' __ " | Longitude (°E): | ___ ° __ ' __ " |
| Structure height (m): | | Building height (m): | |

**4. APPARATUS INFORMATION**

| Manufacturer / Model / Serial no.: | Power: | Emission: | Frequency band: | Use (transmitter, receiver etc) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

**5. DO YOU HAVE A LICENCE / ASSIGNMENT UNDER THE COMMUNICATIONS AND MULTIMEDIA ACT 1998? IF SO, PLEASE PROVIDE DETAILS OR A COPY OF YOUR LICENCE / ASSIGNMENT.**

Amateur Service: Amateur Station Form 1/7

RSAD/AAP-F07

**6. PLEASE STATE THE REQUIRED VALIDITY DATE AND PERIOD.**

| | |
|---|---|
| Date: | Date assignment is issued OR<br>Date required (Please state the date) |
| Period (from 3 months to 5 years): | |

**7. I CERTIFY THAT THE STATEMENTS MADE IN THIS APPLICATION ARE COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE, THE APPARATUS IS TYPE APPROVED FOR USE IN MALAYSIA AND IT WILL BE USED ONLY FOR THE PURPOSES AUTHORIZED BY THE MINISTER OF COMMUNICATIONS AND MULTIMEDIA MALAYSIA.**

| | | | |
|---|---|---|---|
| Signature: | | Date: | |

**If applicant is under 21 years of age, counter signature of parent or guardian is required:**

_____

Note: Please enclose the following:

1. A sketch of the aerial(s) to be used;
2. A copy of applicant's identification card or passport;
3. A copy of Radio Amateur Examination (RAE) result for Class B license application/ a copy of Morse Code result for Class A license application. (Printed copy of RAE result from MCMC's website is also acceptable);
4. Letter of reference by two members of MARTS or Class A amateur radio holders as shown in Appendix A;
5. Statutory declaration form signed by Justice of the Peace/ Magistrate/ a Commissioner of Oaths as shown in Appendix B; and
6. List of 3 preferable call signs as shown in Appendix C. MCMC reserves the right to assign any call sign in the event the preferred call sign are not available.
7. A copy of existing AA certificate/ a copy of RAE or Morse Code result (for re-application)

**FOR MCMC USE ONLY**

| | |
|---|---|
| Fee paid: | |
| Cheque or Bank in slip no.: | |
| Receipt no. / date: | |

Amateur Service: Amateur Station Form 2/7

RSAD/AAP-F07

**APPENDIX A**

Chairman
**Malaysian Communications and Multimedia Commission**
MCMC Tower 1
Jalan Impact
Cyber 6
63000 Cyberjaya
Selangor

**RE : APPLICATION FOR AMATEUR RADIO STATION ASSIGNMENT (CLASS A/B *)**

We, the undersigned being authorized persons of MARTS / holders of Class A Amateur assignment hereby certify that (Name)_____ (NRIC)_____ is known to us and is of good character.

*He has also demonstrated practical skills to us for the operation and use of amateur radio station apparatus.

Thank you.

Signed

1._____

Name: _____

Call Sign: _____

2._____

Name: _____

Call Sign: _____

***delete where appropriate.**

Amateur Service: Amateur Station Form 3/7

RSAD/AAP-F07

**APPENDIX B**

***STATUTORY DECLARATION REGARDING SECRECY OF WIRELESS COMMUNICATIONS.***

To be included with applications for land and mobile amateur stations.

I, _____
Of _____

IDENTITY CARD No./PASSPORT No._____ do solemnly and sincerely declare:

1. That I will hold strictly secret all wireless telegraphic or telephonic or other communications that may pass through my hands or come to my knowledge in the execution of the wireless or telephonic duties entrusted to me.

2. That I will not directly divulge to any person (other than a properly authorized official or Malaysia or a competent legal tribunal), or make any use whatever of any message or information coming to my knowledge by reason of the licensed installation. If employed as an operator at a station licensed to conduct commercial wireless traffic I will not give any information directly or indirectly respecting such message or communications are intended and/or to any authorized official of Malaysia or authorized official of my employer.

3. That I will not transmit or cause to be transmitted by wireless telegraphy or telephony any message received by me for transmission or deliver or cause to be delivered to any person any message received by me by wireless telegraphy or telephony, unless the delivery of such message has been approved by the Malaysian Communications and Multimedia Commission or its duly authorized official.

And I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the Statutory Declarations 1960.

Subscribed and solemnly declared by }
The above named_____ }
_____ }
at _____ }
this _____day of_____,20_____}

Signature:_____

Before Me,

Signature:_____

**NOTE:** To be signed before Justice of the Peace, Magistrate or a Commissioner of Oaths. Any person who makes a false statement in a statutory declaration is guilty of an offence and is liable to imprisonment for three years and is also liable to a fine.

Amateur Service: Amateur Station Form 4/7

RSAD/AAP-F07

**APPENDIX C**

Applicant's Name: _____

I/C No: _____

My call sign choices:

| Choice | Call sign |
|---|---|
| First | |
| Second | |
| Third | |

If all my choices are not available please contact me at:

Tel No: _____

I understand that MCMC reserves the right to assign any call sign in the event the preferred call sign are not available.

.....
Signature

Amateur Service: Amateur Station Form 5/7

RSAD/AAP-F07

**INSTRUCTIONS ON COMPLETING THE FORM**

## 1. INTENT

1.1 The intent of this document is to provide applicants with instructions to assist them in properly completing the APPARATUS ASSIGNMENT(S) AMATEUR RADIO STATION FORM.

1.2 The AMATEUR RADIO STATION FORM is to be completed by the applicant and submitted to the Malaysian Communications and Multimedia Commission office for the following types of Amateur services apparatus:-

*1) Amateur Station (Class A)*

*2) Amateur Station (Class B)*

1.3 Please complete one Amateur Radio Station Application Form per type of station indicated above. An Amateur station is define as being one or more transmitters, receivers, or a combination of both belonging to a single applicant at a specified location. An application for an amateur repeater station must be made on the MOBILE SERVICES FORM.

1.4 The application fee is **RM 60.00** per application.

1.5 Cheques, postal orders or money orders should be made payable to the ***" Suruhanjaya Komunikasi dan Multimedia Malaysia "*** or by online payment through MCMC's website at www.mcmc.gov.my.

1.6 Print clearly – illegible, unclear or incomplete application forms may delay processing.

## 2. PROCEDURES

2.1 Each application contains 7 sections which can be selected according to the services.

| | |
|---|---|
| *Section 1* | *for client information* |
| *Section 2* | *for application information* |
| *Section 3* | *for geographical Area information* |
| *Section 4* | *for apparatus information* |
| *Section 5* | *for information on existing license or assignment.* |
| *Section 6* | *for validity period (3 months up to 5 years)* |
| *Section 7* | *for the applicant's certification & signature* |

The information in each of those sections is required to properly analyse the application. Failure to complete portions of the application could result in a delay in the assignment of a frequency.

2.2 New Apparatus

If the application is for a new station, i.e. the applicant does not already have any apparatus assignment at the location, then the applicant should indicate this by checking the "New apparatus" box. NOTE: If the client has existing license(s) / assignment(s), then the client ID number field should be completed to assist MCMC staff in locating the applicant's file.

2.3 Change to Existing Apparatus Assignment

Please indicate if the application is for a change in an existing apparatus assignment, such as a change of frequency, the addition of new frequency or a change of location. Please indicate this by checking the "Existing apparatus" box, entering the client ID number, the assignment number, and the callsign, found on the existing license/assignment, in the appropriate fields on the form.

2.4 Client Information

This section requests particular information on the applicant (individual, business or company).

2.4.1 Addresses

Please indicate your Business / Residential address for assignments and other correspondence. Please indicate if a separate address is needed for all billing correspondence.

2.4.2 Contact

This section informs MCMC on how and who to contact for more information on the application to avoid any delay.

Amateur Service: Amateur Station Form 6/7

RSAD/AAP-F07

2.5 Geographic Area Information

This section pertains to the actual location of the station. These four fields detail the location name and a site address if the location of the station is not the same as the mailing address above. If the station is portable or mobile then the registration number of the vehicle in which the unit will be employed should be indicated in the "Location name field".

2.6 Apparatus Information

Please provide information on the make, model and serial number of the apparatus being employed at the station. Included are fields requesting the transmitter output power, the emissions and frequency bands to be employed and the use of the equipment, e.g; transmitter, receiver, transceiver.

2.7 Comments / Remarks

Please provide details of your existing license/assignment under the Communications and Multimedia Act 1998. Please enter any comments or remarks that may assist MCMC in processing the application in an efficient manner. If required, please provide attachments.

2.8 Certification and Signature

Please READ CAREFULLY the certification, sign and date the form where indicated. The name and I.C. number of the signatory should be PRINTED clearly where indicated.

Amateur Service: Amateur Station Form 7/7

## Appendix 11: Contact Details of the MCMC and its State Offices

**Head Quarters:**

**Malaysian Communications and Multimedia Commission**
***Suruhanjaya Komunikasi dan Multimedia Malaysia***
MCMC Tower 1
Jalan Impact, Cyber 6
63000 Cyberjaya
Selangor Darul Ehsan
Malaysia

**Contact us at:**

Telephone: 03 8688 8000
Facsimile: 03 8688 1000
E-mail: scird@mcmc.gov.my

**For consumer complaints call:**

Toll Free: 1 800 188 030

MCMC State Offices - https://mcmc.gov.my/en/contact/regional-offices