

Government of India
Ministry of Communications & I.T.
Department of Telecommunications
WPC Wing

No. L-14011/255/2004-AMT

Dated: 13/8/2010

Office Memorandum

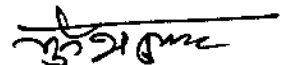
Subject: Guidelines and clarification in the context of Indian Wireless Telegraph(Amateur Service) Amendment Rules,2009 dated 1st April,2010 and Indian Wireless Telegraphs(Amateur Service)Amendment Rules,2005 dated 9th June,2005

The undersigned is directed to refer the amendment rules mentioned above and to inform that they have come into effect from the date of issue of the last amendment. i.e. from 1st April, 2010 onwards.

2. The following guidelines are being issued to bring clarity to all those Amateurs, existing as well as the prospective Amateurs in India in the light of the above amendments.

3. The major changes in the licensing rules are tabulated below that compares the position before and after the amendment.

| Sl no | Category | Existing | As per Amendment |
|-------|---------------------|---|--|
| 1 | Licenser categories | 1. Adv. Grade 2. Gr.I. 3. Gr.II. 4. Gr.II(R) 5. SWL | 1. General. 2. Restricted. |
| 2 | Examination Fee | Rs.10 (Rest. & Gr. II), Rs. 20(Gr.-I), Rs. 25 (Adv. Gr.) | Rs.100/- for each grade. |
| 3 | Period of Validity | 2 and 5 years | 20 years and lifetime. |
| 4 | Licence Fee | Rs. 25(Rest. & Gr.II),Rs. 40 (Gr.-I), Rs.50 (Adv. Gr.) for 2 years Rs. 60(Rest.& Gr.II), Rs. 40 (Gr.-I), Rs.50 (Adv. Gr.) for 5 years. | Rs.1000/- for 20 years and Rs. 2000/- for lifetime for each grade. |
| 5 | Renewal. | -----do----- | 20 years and Rs.1000/- |



| | | | |
|----|--|--------------------------------------|--|
| 6 | Period of late renewal and surcharge. | 5 Years. Rs.10/- for every half year | 5 Years. Rs.100/- for every half year or part thereof. |
| 7 | Fee for change of location: | Rs. 5/- | Rs.200/- |
| 8 | Fee for mobile endorsement: | Rs. 10/- | Rs.200/- |
| 9 | Fee for issue of duplicate of licence: | Rs. 10/- | Rs. 100/- |
| 10 | Fee for duplicate of renewal licence slip: | Rs. 5/- | Rs. 100/- |

4. The existing Grade II and Restricted category shall be migrated to the new 'Restricted' category at the time of their next renewal after the payment of revised fees for 20 years or lifetime as the case may be at the request of the applicant. This is also applicable to those whose case sheets are pending at WPC for issue of new license. The old license type will be indicated in their license to distinguish them from those who seek licensee afresh based on the new notification.

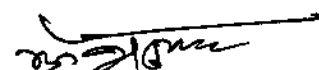
5. It is also desired that those who apply for the renewal should register in the WPC website and file their application 'online' also. The request for renewal should enclose the Acknowledgement slip for the 'online' submission along with the demand draft and other documents.

6. Those who have qualified in the Amateur examination and yet to receive the license may receive a communication from this Ministry for the payment of revised fees. This letter shall be issued only after the Intra-Ministerial clearance is received from the concerned Ministry. It is therefore requested that the license fees should not be sent without receiving any letter from this Ministry.

7. Those licensees who have already applied for renewal and who are yet to receive the renewal certificate may send the request along with the necessary fees. i.e. Rs.1000 for 20 years and Rs.2000 for Lifetime. The option for 20 years or lifetime should be clearly mentioned in the application form.

8. The frequency, emission and power authorized to the Amateurs in India have been revised as per Annexure-I. These are issued in the light of the NFAP 2008, which is already available on the WPC website.

9. The NFAP review committee is periodically meeting to discuss the changes that are required in the spectrum management in India considering the technical changes that happens in India, Industrial development/technological transfers into India, ITU



regulations etc. The Amateur clubs who advocate the causes of the Amateurs are requested to actively participate in this committee to put forward any new proposals with regard to the frequency bands, power of transmission etc used by Amateur in India. No proposal shall be considered by WPC unless it is accepted by the NFAP review committee.

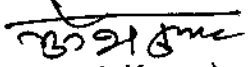
10. The revised syllabus for the Amateur is placed at Annexure II of this OM. The exams as per the new pattern shall be conducted by the various Wireless Monitoring Stations. The applicants may contact the respective Monitoring stations for the schedule of the examination.

11. The call-sign block VU2 shall be reserved for "General" grade and block VU3 to "Restricted" Grade for future licences.

12. This O.M shall supercede the "Frequency bands, Emission and Power that was notified by WPC Wing through its notification dated 4th October 1985.

13. For further clarification, comments if any, the undersigned may be contacted.

Encl: As above


(Munesh Kumar)
Assistant Wireless Advisor.

To,
All concerned

Copy to:

1. Director (WM), Wireless Monitoring Headquarters, Pushpa Bhawan.
2. Engineer-in-Charge(ER/WR/NR/SR)
3. JWA/DWA Regional Licensing Office, Delhi, Mumbai, Chennai, Kolkata, Shillong.

Annexure-I

| Category of License (New) and Bands | Frequency bands | Emission | Max DC Input Power unless Otherwise specified | Remarks |
|-------------------------------------|-------------------|---|---|--|
| Restricted Grade | 1820-1860* KHz | A3E,H3E, J3E,R3E | 50 watts | Old "Grade II" Licensees are also authorized to use A1A emission in these bands. |
| | 3500-3700* KHz | | | |
| | 3890-3900* KHz | | | |
| | 7000-7100KHz | | | |
| | 7100-7200 KHz | | | |
| | 14000-14350 KHz | | | |
| | 18068-18168\$ KHz | | | |
| | 21000-21450 KHz | | | |
| | 24890-24990\$ KHz | | | |
| | 28000-29700 KHz | | | |
| | 50-54 MHz | F1B,F2B, F3E,F3C | 10 Watts | |
| | 144-146 MHz | -Do- | 10 Watts | Old "Grade II" Licensees are also authorized to use A1A and A2A emissions in these bands |
| | 434-438@ MHz | | | |
| General Grade | 1820-1860* KHz | A1A,A2A,A3E,H3E, J3E,R3E, F1B,F2B, F3E,F3C, A3C,A3F | 400 Watts | |
| | 3500-3700* KHz | | | |
| | 3890-3900* KHz | | | |
| | 7000-7100 KHz | | | |
| | 7100-7200 KHz | | | |
| | 14000-14350 KHz | | | |
| | 18068-18168\$ KHz | | | |
| | 21000-21450 KHz | | | |

| | | | | |
|---------------|----------------------|---|-----------|--|
| General Grade | 24890-24990\$ KHz | A1A,A2A,A3E,H3E, J3E,R3E, F1B,F2B, F3E,F3C, A3C,A3F | 400 Watts | |
| | 28000-29700 KHz | | | |
| | 50-54 MHz | F1B,F2B, F3E,F3C | 25 Watts | |
| | 144-146MHz | -Do- | 25 Watts | |
| | 434-438@MHz | -Do- | 25Watts | |
| | <u>5725-5840@MHz</u> | | | |

* On primary shared basis as per the relevant provision of Radio Regulations.
\$ Authorization is on non-interference and non protection basis.
@ On secondary basis as per the relevant provisions of Radio Regulations.

Note:

- (i) All the allocation subject to the relevant provisions of the Radio Regulations. Amateur satellite service is permitted for General Grade in the appropriate sub bands in accordance with Radio Regulations and in those cases the maximum output RF power (eirp) is 30 dBw.
- (ii). The above authorization is subject to site clearance as per the procedure prescribed by the Standing Advisory committee on Radio frequency allocation (SACFA) as applicable.
- (iii) For A3F emission, the transmission shall be restricted to call-sign of the station, location and other particular of the station. They shall be limited to point to point test transmission employing a standard interlace and scanning with a bandwidth not more than 4 KHz.
- (iv) DC input power is the total direct current power input to the final stage of the transmitter.

Annexure II

SYLLABUS

**SYLLABUS AND THE DETAILS OF EXAMINATIONS FOR THE AWARD OF
AMATEUR STATION OPERATOR'S LICENCE (Restricted) and (General)**

1. The examination shall consist of the following two parts:

PART I - Written Test

It shall comprise of one paper containing two sections as under:

Section A: Radio Theory and Practice

Note- Applicants holding degree in Engineering/Science or Diploma in Engineering and having studied electronics or telecommunications shall be exempted from appearing in Section A of Part-I of the test.

Section B: National and International Telecommunication Union (ITU) Radio Regulations applicable to the operation of amateur station and those relating to the working of station generally.

PART II -- Morse (Only for General Certificate)

Morse reception and sending (8 wpm)

2. Detailed syllabus:

2.1 Amateur Station Operator's Licence (Restricted) Examination

Part I – Written Test

Section A: Radio Theory and Practice:

(i) Elementary Electricity and Magnetism:

1. Elementary theory of electricity- Passive Devices (Resistors, Inductors, Transformers, Capacitors) and Active Devices (Diodes, Transistors).
2. Kirchoff's current and voltage laws- Simple applications of the law.
3. Conductors and Insulators – Properties, units of circuit elements, Ohm's Law.
4. Conductance – Definition of self and mutual inductance,
5. Power and energy- Definition, Units and simple applications.
6. Permanent magnets and electromagnets – Definition, properties and their use.

(ii) Elementary Theory of Alternating Currents:

1. Sinusoidal alternating quantities – Definition of peak, instantaneous, R.M.S., average values and its simple application.
2. Phase, reactance, impedance, power factor- Definition, units and simple applications.
3. Parallel and Series Circuits - series and parallel circuits containing resistance, inductance, capacitance, resonance in series and parallel circuits, coupled circuits.
4. Rectifiers, voltage regulation and smoothing circuits - Their basic knowledge and simple application.

(iii) Elementary theory of Semiconductor Devices:

1. Diodes and transistors- Properties use of these devices for construction of amplifiers, oscillators, detectors and frequency changers.

(iv) Radio Receivers :

1. Principles and operation of T.R.F. and super heterodyne receivers.
2. CW reception.

3. Receiver characteristics-sensitivity, selectivity, fidelity, adjacent channel and image interference, A.V.C. and squelch/circuits, signal to noise ratio.

(v) Transmitter :

1. Principles and operation of low power transmitter, crystal oscillators, stability of oscillators.
2. Basic knowledge about construction of Semiconductor based transmitters.

(vi) Radio Wave Propagation:

1. Basic knowledge of Electromagnetic Spectrum.
2. Wave length, frequency, frequency bands.
3. Nature and propagations of radio waves, ground and sky waves, space waves, skip distance, skip zone and fading.

(vii) Aerials: Common types of transmitting and receiving aerials.

(viii) Frequency Measurement: Measurement of frequency and use of simple frequency meters.

Section B: Radio Regulations:

(a) Knowledge of :- (i) the Indian Wireless Telegraph Rules, 1973.

(ii) the Indian Wireless Telegraphs (Amateur Service) Rules, 1978 and amendments.

(b) Knowledge of ITU Radio Regulations as relating to the operation of amateur stations with particular emphasis on the following:

| Item | Provision of Radio Regulation (2008 edition) |
|---|--|
| Designation of Emission. | Appendix-I |
| Phonetic alphabets and figure code. | Appendix 14 |
| Nomenclature of the Frequency & Wavelength. | Article 2 |
| Frequency allocation for Amateur Services. | Article 5 |

Interference, measures against interference & tests.
Identification of Stations.
Distress Signal, Call and Message. Transmissions.
Urgency Signal, Call and Message Transmissions.
Amateur Station.
Call Sign series allocated to India.

Article 15
Article 19.
Article 30, 31, 32 & 33.
Article 30, 31, 32 & 33.
Article 25
Appendix 42

(c) Standard Frequency and Time Signals Services in the World.

(d) The following 'Q' codes and abbreviations shall have the same meaning as assigned to them in the Convention.

QRA, QRG, QRH, QRI, QRK, QRL, QRM, QRN, QRQ, QRS, QRT, QRU, QRV, QRW, QRX, QRZ, QSA, QSB, QSL, QSO, QSU, QSV, QSW, QSX, QSY, QSZ, QTC, QTH, QTR, and QUM.

Abbreviations: AA, AB, AR, AS, C, CFM, CL, CQ, DE, K, NIL, OK, R, TU, VA, WA, WB.

Note: -

1. The written test will be of **one hour** duration. The maximum marks will be 100 and candidate must secure at least **40 %** in each section and **50%** in aggregate for a pass.
2. There will be **NO Morse test for restricted grade.**

2.2. Amateur Station Operators' License (General) Examination

Part I - Written Test

Section A: Radio Theory and Practice

In addition to the syllabus prescribed for Amateur Station Operator's License (Restricted) examination, following items shall be included in the syllabus of Amateur Station Operators' license (General) examinations:-

- (i) **Principles of Communications:**

1. Elementary idea of analog and digital communication.
2. Need for modulation; Modulation- amplitude, frequency and pulse modulation.
3. Elementary idea about demodulation.

(ii) Alternating current:

1. Basic concepts on construction of transformers.
2. Definition of Transformer losses.
3. Transformer as a matching device

(iii) Semi Conductor devices and Transistors:

1. Elementary principles of conduction and construction;
2. Symbols and biasing methods.

(iv) Power Supplies:

1. Basic knowledge of half wave and full wave rectifiers.
2. Definition and application of Bridge rectifier, smoothing and regulating circuits.

(vii) Transmitters and Receivers:

1. Elementary principles of transmission and reception of Facsimile and Television signals,

(viii) Propagation:

1. Characteristics of ionosphere and troposphere.
2. Properties of ionosphere layers.
3. Critical frequency and day / night frequencies.

(ix) Aerials:

1. Principles of radiation.
2. Aerials for different frequency bands including aerials for microwave,

(x) **Space Communications:**

1. Elementary principles of communication via satellites.

Section B: Radio Regulations:

Same syllabus as prescribed for Amateur Station Operators' License (Restricted) examination.

The above written test will be of **two hour** duration. The maximum marks will be 100. A candidate must secure at least 50 % in each section and 60% in aggregate for a pass.

Part II - Morse

Morse receiving: (Speed: 8 words per minute)

The test piece will consist of a plain language passage of 200 characters which may comprise of letters, figures. Test piece may also contain the following punctuations ie full stop; comma; semi colon; break-sign; hyphen and question mark. The average words shall contain five characters and each figure and punctuation will be counted as two characters. The test will be for five consecutive minutes at a speed of 8 words per minute. A short practice piece of one minute shall be sent at the prescribed speed before the start of the actual test. Candidates will not be allowed more than one attempt in Morse reception and sending test. The test may be written in ink or pencil but must be legible. Over-writing will be treated as error. If any correction is required the candidate may struck the wrong character and write the correct above the character. More than 5 errors will disqualify a candidate. However if a candidate receives without any error in any part of the passage continuously for one minute duration will be declared successful in the Morse reception test.

Morse Sending (Speed: 8 words per minute)

The test piece will be similar to Morse Receiving test for Amateur Station Operators' License (General) examination. Candidates are required to send for five consecutive minutes at a speed not less than 8 words per minute. Other conditions are the same as applicable to Amateur Station Operators' License (General) examination.

Note- A candidate shall have to pass both receiving and sending simultaneously.