MINISTERIAL DECREES WITH GENERAL OPERATIONS of the 14th of April 2000, for the execution and implementation of sections 5 and 6 of the National Resolution on amateur radio operators (P.B. 1999. no. 209) (Decree on rules for examinations of amateur radio operators)

THE MINISTER OF TRAFFIC AND TRANSPORTATION

Considering: that it is desirable for the implementation of sections 5 and 6 of the National Resolution on amateur radio operators (P.B. 1999. no. 209), to establish rules and regulations concerning the examinations to become qualified to operate transceivers in the capacity of an amateur radio operator;

In view of:

Sections 5 and 6 of the National Resolution on amateur radio operators (P.B. 1999. no. 209),

HAS RESOLVED

Definitions

Section 1

In this regulation the following terms shall have the meaning thereby given:

a. Director : the Director of the Bureau Telecommunication and Post;
b. committee : the committee, referred to in section 6, first sub-section of the National Resolution on amateur radio operators;
c. chairman : the chairman of the committee, or in the absence of the latter the deputizing chairman;
d. candidate : the person who has applied for participation in an examination;
e. examination : an examination as referred to in section 6, first sub-section of the National Resolution on amateur radio operators;
f. certification of the qualification : the proof of competence issued by the Director in evidence of having successfully passed an examination.
Application

Section 2

1. The chairman shall determine the place, the date and the time of the examinations. The manner in which to apply shall be announced in the local media.

2. After payment of the fee due, as referred to in section 6, fourth sub-section of the National Resolution on amateur radio operators, within the term stipulated by the chairman, the candidate shall receive an invitation to participate at least eight days prior to the examination.

3. The fees, as referred to in the second sub-section are non-refundable, if the candidate should withdraw from the examination or should fail to appear.

Categories of examinations

Section 3

1. The examinations are sub-divided in the following categories:
   a. the examination for obtaining the license-A for amateur radio operator;
   b. the examination for obtaining the license-B for amateur radio operator;
   c. the examination for obtaining the license-C for amateur radio operator; and
   d. the examination for obtaining the license-N for amateur radio operator.

2. The examinations referred to in the first sub-section are sub-divided in the following components:
   a. radio technology and prescriptions;
   b. taking up and sending of Morse Code signals with a speed of 12 words per minute;
   c. taking up and sending of Morse Code signals with a speed of 8 words per minute.

3. In order to successfully pass the examination referred to in the first sub-section, it is at any rate required that the candidate has successfully passed the pertinent exam:
   a. for the license-A, the examinations stated in the second sub-section sub a and b;
   b. for the license-B, the examinations stated in the second sub-section sub a and c;
   c. for the license-C the examinations stated in the second sub-section sub a;
   d. for the license-N, the examinations stated in the second sub-section sub a and b.

4. The examination programs of the examinations, referred to in the second sub-section have been inserted in the annexes pertinent to this regulation.

The examination

Section 4
1. If so required the candidate shall provide proper identification, in accordance with the prescriptions as shall be determined by the chairman.

2. By or on behalf of the chairman the candidate is notified of the examination rules prior to the commencement of the examination.

3. Instructions given by or on behalf of the chairman relative to the examination, shall be complied with by the candidate.

4. The written examination shall in principle be taken in a group.

Section 5

1. The component radio technology and prescriptions shall be examined in writing by means of multiple choice questions. The duration of this examination shall be one hour at least and two hours at most.

2. The examination of signaling and taking the reading of Morse Code signals consists of two take down tests, followed by two signaling tests. Each test has a duration of 5 minutes. A candidate who has scored an insufficient mark for both take down tests, will not be considered for participating in the signaling tests.

3. During the examination at least two members of the committee shall be present.

Section 6

1. If a candidate should have been guilty of any type of deceit with regard to the examination, and this should be discovered either before or during the examination, the chairman shall preclude him from (further) participation in the examination.

2. If a candidate should have acted in violation of this regulation in whichever other way, the chairman may preclude him from (further) participation in the examination.

3. If a deception or any other irregularity should only be discovered after the close of the examination, the chairman may invalidate the examination of the participant who was guilty of same.

4. If, apart from the cases mentioned in the first through the third sub-section, the exam should not have taken place in a legitimate manner, the chairman may decide to have the examination repeated again either in whole or in part.

The specific examination

Section 7
1. In deviation from the sections 4 and 5, the chairman may, at the request of the candidate, decide to effectuate the examination in another manner, if:
   a. the health condition of the candidate should not allow the examination to be taken in the manner referred to in section 4. The candidate should submit a medical indication to that effect.
   b. A candidate should remain abroad outside of the Netherlands Antilles for extended periods of time;
   c. A candidate should not have sufficient linguistic skills in the Dutch or English language.

2. In any such event the examination shall be conducted by two members of the committee.

Section 8

The examination on Radio Technology and Prescriptions shall be taken in writing. The examination has a duration of one hour at least and two hours at most for each component.

Norms for the examinations of taking down and sending of Morse Code signals

Section 9

1. The components taking down and signaling of Morse Code signals, consist of:
   a. taking down Morse code signals by ear.
      A test of taking down signals meets the examination requirements if the candidate has written down the text of the examination sufficiently legible within the stipulated time, at which he may not have more than 8 errors for the license-A and for the license-B not more than 5 errors. Missing or incorrect signals within a group of 5 consecutive signals, are counted as one error.
   b. signaling by means of Morse code signals.
      A test of signaling meets the examination requirements if the candidate has sent the text of the examination sufficiently legible and in a regular signaling script within the stipulated time, at which he may not have more than 8 errors for the license-A and for the license-B not more than 5 errors. Missing or incorrect signals within a group of 5 consecutive signals, are counted as one error. Signals not sent within the stipulated time, shall each be counted as one error. Errors in the signaling scripts shall be considered corrected, if after sending an error signal (a minimum of 8 points) the signaling is resumed again after the last correctly signaled word.

2. The examination has been successfully passed if the candidate has scored a sufficient mark for the component "taking down", as well as for the component of "signaling".

The norm for specific examinations
Section 10

A candidate who has participated in an examination as referred to in section 7, shall have successfully passed the examination, if at the discretion of 2 examiners he proved:
a. to be sufficiently knowledgeable in the field of radio technology and the prescriptions that are in force for amateur radio operators; and
b. to possess sufficient skills in taking down and signaling by Morse Code signals with a speed of 8 or 12 words per minute.

Exemption

Section 11

If the candidate successfully passed an examination abroad to qualify as an amateur radio operator, or another examination of taking down and signaling by Morse code signals, which examinations were conducted by a competent authority, and are to be considered at the discretion of the committee, equivalent to one of the examinations referred to in section 2, first sub-section, the chairman may exempt him wholly or partly from one or more of the components referred to in section 3, second sub-section.

Examination results

Section 12

1. A candidate shall be informed by the committee within thirty days after having taken the examination of the results obtained.

2. If the examination was taken successfully, the candidate shall receive the Certification, qualifying him as an amateur radio operator.

3. Neither the results of the examination, nor the substance of the questions are open to correspondence.

Additional rules

Section 13

The committee has the authority to determine additional rules for the course of the proceedings during the examination, which may not be in violation of this decree.

Appeal

Section 14

1. No appeal is admitted against the decision of the committee.
2. Against a decision of the chairman as referred to in section 6, the candidate is allowed to lodge an appeal with the Director within 30 days. The appeal shall be submitted in writing and must be reasoned.

Final provision

Section 15

In the cases whenever this regulation and the rules determined pursuant to section 13 do not provide for, the chairman shall have decision making power.

Section 16

This ministerial decree shall become operative as of the date on which the National Resolution on amateur radio operators (P.B. 1999, no. 209) shall become operative.

Section 17

This ministerial decree may be quoted as: Decree on examination rules for amateur radio operators.

Willemstad, April 14th, 2000
The Minister of Traffic and Transportation
M.H. PH. ADRIAENS

Issued on the 14th of april, 2000
The Minister of General Affairs
M.A. POURIER

The above is a true and unaltered translation of the original text in the decree, drawn up in the Dutch language.
IN WITNESS WHEREOF I affix my seal and signature hereto.

Curacao, May 16th, 2005
EXPLANATORY NOTE pertaining to the Ministerial Decree with general operation of the 14th of April, 2000 for the implementation of Sections 5 and 6 of the National Resolution on amateur radio operators (P.B.1999, no.209).
(Regulation of the examination for amateur radio operator)

§ 1. General observations

The decree under consideration states provisions for the implementation of section 33 of the National Resolution on radio-electric installations (P.B. 1998, no.18). The latter national resolution gives the general outline of the stated provisions of the national ordinance. The rules in connection with the examinations to qualify as an amateur radio operator are partly of an international nature, apart from the adaptation in substance by the rapidly advancing developments in the field of telecommunication technology.

It was also necessary to adapt the substance of the examinations to the criteria that are in force in the region and in Europe, in order to meet the requirements, which are operative as a basis for existing and in the future upcoming multi-lateral agreements, to which the Netherlands Antilles must also participate.

The examination was also elaborated further by a special annex concerning the license-N, which up to now had not been recognized by the Netherlands Antilles.

Resolution 640 of the International Telecommunication Union which regulates the use of amateur radio equipment during natural calamities, has been inserted as Annex 4. This international Resolution requests the administrations of all the countries to enact provisions in their national legislation concerning the communication during natural calamities.

Elucidation section by section

Section 1
This section gives the definitions of the words repeatedly used in the decree.

Section 2
This section states the manner in which to apply for the examination and refers to the fee, stated in section 14 of the National Resolution on radio-electric installations.

Section 3
This section describes the components of the examinations and refers to the various annexes for the particulars of same.

Section 4
This section states guidelines for the candidate and for the examining board.

Section 5
In this section the norms have been stated, which the written examinations have to comply with.
Section 7
There was no regulation in existence in the Netherlands Antilles for disabled persons, nor rules for those who are not sufficiently fluent in the languages of the examinations, as a result of which they were excluded. This section aims at redressing the aforementioned shortcoming in our national legislation.

Section 9
This section describes the manner in which to conduct the telegraphic (Morse) examinations, the time and the counting of errors.

Section 10
In this section the specific examinations are stated, whereas section 11 states the criteria with regard to the exemptions.

Section 12
These sections refer to the results of the examinations and detail the rules and the manner in which to lodge an appeal.

Annex 1
Annex 1 gives a further description and elucidation of the examination in sending and receiving Morse Code signals.

Annex 2
This Annex states the requirements in connection with obtaining the licenses-A, B and C.

Annex 3
Annex 3 states the requirements which are in force for the new license-N.

Annex 4
This is the substance of the Resolution 640 of the International Telecommunication Union (ITU), which is related to the use of frequency bands which are allocated to amateur radio operators during the occurrence of natural calamities.
Annex 1 pertinent to the Ministerial Decree with general operation of the 14th of April, 2000 for the implementation of sections 5 and 6 of the National Resolutions on amateur radio operators (P.B.1999, no. 209)

**Taking down and sending of Morse code signals.**

1.1 **Taking down Morse code signals by ear**

The examination for this component consists of 2 tests, each with a duration of 5 minutes. The text of the examination drawn up in the Dutch or the English language consists of 300 Morse code signs for the amateur radio operator's license-A and of 200 Morse code signs for the amateur radio operator's license-B. Each letter is counted as one and each figure as two signals. Each candidate has scored a sufficient mark for a test in taking down, if the examination text is written down in sufficiently legible script within the determined time. Hereby a maximum of 8 errors are allowed in the examination text for the amateur radio license-A and a maximum of 5 errors in the examination text for the amateur radio license-B. Signals which were not or not correctly written down within a group of 5 consecutive signs, are counted as one error.

The group of 5 signs is determined as starting from the Morse signal that was not or was incorrectly taken down.

The candidate has scored a sufficient mark for the component of taking down, if one of both tests in taking down was marked as sufficient.

1.2 **Signaling in the Morse code alphabet.**

The examination of this component consists of 2 tests, each with a duration of 5 minutes. The text of the examination, drawn up either in English or in Dutch, consists of 300 Morse Code signs for the amateur radio license-A and of 200 Morse code signs for the amateur radio license-B.

Each letter is thereby counted as one sign and each figure as two signs. A candidate has scored a sufficient mark for a test in signaling, if the examination text is signaled in sufficiently legible and regular Morse code script within the determined time. Hereby a maximum of 8 errors are allowed in the examination text for the amateur radio license-A and a maximum of 5 errors in the examination text for the amateur radio license-B.

Errors in the signaled scripts shall be considered corrected, if after sending an error signal the signaling is resumed again after the last correctly signaled word.

Signals which were not correctly sent within a group of 5 consecutive signs, are counted as one error. The group of 5 signs is determined as starting from the Morse signal that was incorrectly signaled.

Signals that were not sent within the stipulated time, are counted as one error each. The candidate has scored a sufficient mark for the component of signaling, if one of both tests in signaling was marked as sufficient.
Annex 2 pertinent to the Ministerial Decree with general operation of the 14th of April, 2000 for the implementation of sections 5 and 6 of the National Resolutions on amateur radio operators (P.B.1999, no. 209)

THE REQUIREMENTS WHICH MUST BE MET IN ORDER TO OBTAIN CERTIFICATION OF A LICENSE A, B, or C AS A AMATEUR RADIO OPERATOR.

1. PRESCRIPTIONS

Knowledge of the national legislation of the Netherlands Antilles concerning amateur radio operators, as well as knowledge of the international prescriptions in the field of telecommunications provisions, to the extent these are related to amateur radio operators.

National and international directives for use and procedures

A.1  Spelling alphabet
      - the international spelling alphabet

A.2  Q-Code (Q = Question; R = reply)
      QRK  Q: What is the readability of my signals?  
           R: The readability of your signals is...
      QRM  Q: Is my transmission being interfered with?  
           R: Your transmission is interfered with
      QRN  Q: Are you troubled by static?  
           R: I am troubled by static
      QRO  Q: Shall I increase transmitting power?  
           R: Increase transmitting power.
      QRP  Q: Shall I decrease my transmitting power?  
           R: Decrease transmitting power.
      QRS  Q: Shall I reduce the signaling speed?  
           R: Reduce signaling speed
      QRT  Q: Shall I stop sending?  
           R: Stop sending
      QRV  Q: Are you ready?  
           R: I am ready
      QRX  Q: When will you call again?  
           R: I will call you again at ... hours
      QRZ  Q: Who is calling me?  
           R: You are being called by......
      QSB  Q: Are my signals fading?  
           R: Your signals are fading.
      QSL  Q: Can you acknowledge receipt?  
           R: I am acknowledging receipt.
      QSO  Q: Can you communicate with..... direct?  
           R: I can communicate.... direct
      QSY  Q: Shall I change to transmission on another frequency?  
           R: Change transmission to another frequency.
QTH  Q: What is your position in latitude and longitude?
R: My position is.....latitude, .... longitude

A.3  Operational abbreviations
AR  End of transmission.
BK  Signal used to interrupt a transmission in progress
CQ  General call to all stations
CW  Continuous wave
DE  From , used to separate the call sign of the station called from that of the calling station
K  Invitation to transmit
MSG  Message Prefix indicating a message to or from the master of a ship concerning its operation or navigation
PSE  Please
RST  Readability, signal-strength, tone-report
R  Received
RX  Receiver
TX  Transmitter
UR  Your
VA  End of work

International distress signs, emergency traffic and natural disaster communication.

A.4  Distress signs:
   - In radio telegraphy ...----... and in radio telephony "MAYDAY"

II  TECHNICAL CONTENT

B.1  Conductivity
   - Conductor, semiconductor and insulator.
   - Current, voltage and resistance.
   - The units ampère, volt and ohm.
   - Ohm's law.
   - Kirchhoff's laws.
   - Electric power.
   - The unit watt.
   - Electric energy.
   - The unit wattsecond.
   - The capacity of a battery (Ampère-hour).

B.2  Sources of electricity
   - Voltage source, source voltage (EMF), short circuit current, internal resistance and terminal voltage.
   - Series and parallel connection of voltage sources.

B.3  Electric field
- Electric field strength.
- The unit volt/meter.
- Shielding of electric fields.

B.4 Magnetic field
- Magnetic field surrounding live conductor.
- Shielding of magnetic fields.
- Conductor for a magnetic field (iron and ferroxcube).

B.5 Electro-magnetic field
- Radio waves as electromagnetic waves.
- Propagation velocity and its relation with frequency and wavelength.
- Polarisation.

B.6 Sinusoidal signals
- The graphic representation in time
  - Instantaneous value, amplitude, effective value and average value.
  - Period and duration of period.
  - Frequency.
  - The unit Hertz.
  - Phase difference.

B.7 Non-sinusoidal signals
- Audio signals.
- Square wave.
  - The graphic representation in time.
- D.C. voltage component, fundamental wave and higher harmonics.

B.8 Modulated signals
- Amplitude modulation.
- Single-sideband modulation.
- Phase and frequency modulation.
- Frequency deviation and modulation index.
- Carrier, sidebands and bandwidth.
- Waveforms

B.9 Power and energy
- The power of sinusoidal signals.
- Power ratios, corresponding to the following dB values: 0 dB, 3 dB, 6 dB, 10 dB and 20 dB (both positive and negative).
- The input/output power ratio in dB of series connected amplifiers and/or attenuators.
- Matching (maximum power transfer).
- The relation between power input and output and efficiency.
- Peak Envelope Power (PEP).
C. COMPONENTS

C.1 Resistor
- Resistor.
- The unit ohm.
- The relationship between the resistor value, similar resistance, diameter and length of a wire.
- Current/voltage characteristic.
- Power dissipation.
- Positive and negative temperature coefficient (PTC and NTC).

C.2 Capacitor
- Capacitance.
- The unit farad.
- The relation between capacitance, dimensions and dielectric.
- The reactance.
- Phase relation between current and voltage.
- Characteristics of fixed and variable capacitors, air-, mica-, synthetic-, ceramic and electrolytic capacitors.
- Temperature coefficient
- Leakage current

C.3 Coil
- Self-inductance
- The unit henry
- The effect of the number of turns, diameter, length and core material on inductance.
- The reactance.
- Phase relation between current and voltage.
- Q-factor.
- Skin effect.
- Losses in core material.

C.4 Transformer application and use
- Ideal transformer.
- The relation between turn ratio and:
  - Voltage ratio
  - Current ratio
  - Impedance ratio.
- Application of transformers.

C.5 Diode
- Use and application of diodes.
  - Rectifier diode, zener diode, LED, varicap.
  - Throughput current, temperature and power dissipation.
  - Reverse voltage and leakage current.
C.6 Transistor
- PNP- and NPN-transistor.
- Amplification factor.
- The U-ce I-c characteristic.
- Field effect transistor (N-channel and P-channel, J-Fet).
- The resistance between gate and source.
- The I-d U-ds characteristic.
- The I-d U-gs characteristic.

The transistor in:
- common emitter (source) circuit.
- common base (gate) circuit.
- common collector (drain) circuit.
- Input and output impedance of the above circuits.
- Bias method.

C.7 Digital technical science
- Simple digital circuits.
- AND and OR circuit.
- Inverter.
- NAND and NOR circuit.
- Combinations of a maximum of four of the above-mentioned circuits with at most four entrance variables.

C.8 Miscellaneous
- Simple thermionic device (valves) (triode and pentode).
- The i-a u-g characteristic.
- The i-a u-a characteristic.
- Rigidity
- Anode grid capacity.

D CIRCUITS

D.1 A combination of components
- Series and parallel circuits of resistors, coils, capacitors, transformers and diodes.
- Currents and voltage in these circuits.
- Impedance of these circuits.

D.2 Filter
- Series-tuned and parallel-tuned circuit.
- Impedance.
- Frequency characteristic.
- Resonance frequency.
- Quality factor of a tuned circuit.
- Bandwidth.
- Band-pass filter.
- Low-pass, high-pass, band-pass and band-stop filters, composed of passive elements, topple frequency.
- Frequency response
- Pi-filter and T-filter (impedance transformation).
- Quartz crystal.

D.3 Power supply
- Circuits for half-wave and full-wave rectification and the Bridge rectifier.
- Smoothing circuits.
- Stabilization circuits in low voltage supplies.

D.4 Amplifier
- Lf and hf-amplifier.
- Operational amplifier (Opamp).
- Gain.
- Amplitude/frequency characteristic and bandwidth.
- Class A, A/B, B and C biasing.
- Harmonics (non-linear distortion).
- Counter connection

D.5 Detector
- Am-detectors.
- Diode detector.
- Product detector.
- CW/EZB-detectors.
- FM-detectors.
- Flank detectors.
- Foster-Seely-detector.

D.6 Oscillator
- Factors affecting the frequency and the frequency stability.
- Oscillating conditions.
- LC oscillator.
- Crystal-oscillator, overtone-oscillator.

D.7 Phase locked Loop (PLL)
- Control loop with phase-comparator circuit.
- Control loop with a programmable divider.
- Filter within control loop.

E. RECEIVERS

E.1 Types
- Single and double superheterodyne receiver.

E.2  **Block diagrams**
- CW receiver (A1A).
- AM receiver (A3E).
- SSB receiver (J3E).
- FM receiver (F3E).

E.3  **Operation and function of the following stages (Block diagram treatment only)**
- Hf amplifier.
- Oscillator (fixed and variable).
- Mixer.
- Intermediate frequency amplifier.
- Limiter.
- Detector.
- Interference-oscillator (BFO).
- Crystal calibrator.
- LF-amplifier.
- Automatic gain control.
- S-meter.
- Squelch.

E.4  **Receiver specifications (simple description)**
- Near-selectivity.
- Remote selectivity.
- Sensitivity.
- Signal/noise ratio.
- Stability.
- Image frequency.
- Intermodulation, cross modulation.

F.  **TRANSMITTERS**

F.1  **Types**
- Transmitter with or without frequency translation
- Frequency multiplication.

F.2  **Block diagrams**
- CW- transmitter (A1A).
- SSB- transmitter (J3E).
- FM- transmitter (F3E).

F.3  **Operation and function of the following stages (Block diagram treatment only)**
- Mixer.
- Oscillator.
- Buffer (Separating trap).
F.4 Transmitter characteristics (simple description)
- Frequency stability.
- RF bandwidth.
- Sidebands
- LF bandwidth.
- Non-linearity.
- Output impedance.
- Output power.
- Efficiency.
- Frequency deviation.
- Modulation index.
- CW key clicks and chirps.
- Spurious RF-radiations.
- Cabinet radiation.

G. ANTENNAS AND TRANSMISSION LINES

G.1 Antenna types
- Center fed half-wave antenna.
- End fed half-wave antenna.
- Folded dipole.
- Quarter wave vertical antenna (ground plane).
- Antenna with parasitic elements (Yagi).
- Parabolic antenna.
- Dipole with filters (traps).

G.2 Antenna characteristics
- Distribution of the current and voltage
- Impedance at the feed point.
- Capacitive or inductive impedance of a non-resonant antenna
- Polarization.
- Antenna gain.
- Effectively radiated power (ERP).
- Front to back ratio.
- Horizontal and vertical radiation patterns.
G.3 Transmission lines
- Open line.
- Coaxial cable.
- Waveguide
- Characteristic impedance \((Z_0)\)
- Velocity factor.
- Standing-wave ratio.
- Losses.
- Balun.
- Quarter wave line as impedance transformer.
- Open and short circuited line as tuned loop
- Antenna tuning unit.

H. PROPAGATION
- Ionospheric layers.
- Critical frequency.
- Influence of the sun on the ionosphere.
- Maximum Usable Frequency \((\text{MUF})\).
- Ground wave and sky wave.
- Angle of radiation
- Dead zone and skip distance.
- Fading.
- Troposphere.
- The influence of the height of antennas on the distance that can be covered (radio horizon).
- Temperature inversion.
- Sporadic E-reflection.
- Auroral scattering.

I. MEASUREMENTS

I.1 Making measurements
Measurement of:
- DC and AC voltage.
- DC and AC current.
- Resistance.
- DC and RF power (average power, Peak Envelope Power).
- Standing-wave ratio.
- Waveform of the envelope of a RF signal.
- Frequency.
- Resonant frequency.
- Measuring errors:
  - Influence of frequency.
  - Influence of waveform.
1.2 Measuring instruments
Making measurements using:
- Revolving coil meter
- Universal meter.
- Standing wave meter.
- Frequency counter.
- Absorption-frequency meter.
- Dip meter.
- Oscilloscope.

J INTERFERENCE AND IMMUNITY

J.1 Interference in electronic equipment
- Blocking (dislocation of operational point)
- Interference with the desired signal.
- Intermodulation.
- Low-frequent detection.

J.2 Cause of interference in electronic equipment
- Field strength of the transmitter.
- Spurious radiation of the transmitter (parasitic radiation, harmonics).
- Undesired influence of the disturbed equipment:
  - via the antenna input (aerial voltage, input selectivity);
  - via other connected lines
  - by direct radiation.

J.3 Measures against interference
Measures to prevent and eliminate interference effects:
- Filtering.
- Decoupling.
- Shielding.

K. SAFETY

K.1 The human body
- Resistance of the human body.
- Permitted touchable tension.
- The consequences of electric shock.
- Permitted density of power of a high frequency field.

K.2 Mains power supply
- Difference in color code between, phase, zero and ground (color code).
- Design of ground connections.
- Ground leak switch
- Rapid and slow fuses

K.3 High voltages
- Insulation.
- Shielding.
- Grounding.
- Antenna.
- Charged capacitors (condensers).

K.4 Lightning discharge
- Danger.
- Protection.
Annex 3 pertinent to the Ministerial Decree with general operation of the 14th of April, 2000 for the implementation of sections 5 and 6 of the National Resolutions on amateur radio operators (P.B.1999, no. 209)

THE REQUIREMENTS WHICH MUST BE MET IN ORDER TO OBTAIN CERTIFICATION OF A LICENSE-N AS A AMATEUR RADIO OPERATOR.

2. PRESCRIPTIONS

Knowledge of the national legislation of the Netherlands Antilles concerning amateur radio operators, as well as knowledge of the international prescriptions in the field of telecommunications provisions, to the extent these are related to amateur radio operators.

National and international directives for use and procedures

A.1 Spelling alphabet
   - the international spelling alphabet

A.2 Q-Code (Q = Question; R = reply)
QRK Q: What is the readability of my signals?  
   R: The readability of your signals is...
QRM Q: Is my transmission being interfered with?  
   R: Your transmission is being interfered with
QRN Q: Are you troubled by static?  
   R: I am troubled by static
QRO Q: Shall I increase transmitting power?  
   R: Increase transmitting power.
QRP Q: Shall I decrease my transmitting power?  
   R: Decrease transmitting power.
QRS Q: Shall I reduce the signaling speed?  
   R: Reduce signaling speed
QRT Q: Shall I stop sending?  
   R: Stop sending
QRV Q: Are you ready?  
   R: I am ready
QRX Q: When will you call again?  
   R: I will call you again at ... hours
QRZ Q: Who is calling me?  
   R: You are being called by......
QSB Q: Are my signals fading?  
   R: Your signals are fading.
QSL Q: Can you acknowledge receipt?  
   R: I am acknowledging receipt.
QSO Q: Can you communicate with..... direct?  
   R: I can communicate.....direct
QSY Q: Shall I change to transmission on another frequency?  
   R: Change transmission to another frequency.
QTH  Q: What is your position in latitude and longitude?
   R: My position is.....latitude, .... Longitude

A.3  Operational abbreviations
   AR*)  End of transmission.
   BK   Signal used to interrupt a transmission in progress
   CQ   General call to all stations
   CW   Continuous wave
   DE   From , used to separate the call sign of the station called from that of the
calling station
   K    Invitation to transmit
   MSG  Message
   PSE  Please
   RST  Readability, signal-strength, tone-report
   R    Received
   RX   Receiver
   TX   Transmitter
   UR   Your
   VA*)  End of work
   *)  is signaled in a continuous sequence in Morse code

International distress signs, emergency traffic and natural disaster communication.

A.4  Distress signs:
   - In radio telegraphy ...——... and in radio telephony "MAYDAY"

II   TECHNICAL CONTENT

B.1  Conductivity
   - Conductor, semiconductor and insulator.
   - Current, voltage and resistance.
   - The units ampere, volt and ohm.
   - Ohm's law.
   - Electric power.
   - The unit watt.

B.2  Sources of electricity
   - Series connection of voltage sources.
   - Series and parallel connection of voltage sources.

B.3  Radio waves
   - Radio waves as electro-magnetic waves.
   - Polarisation.

B.4  Sinusoidal signals
- The graphic representation in time
- Frequency.
- The unit Hertz.

B.5 Non-sinusoidal signals
- Audio signals.
- Digital signals
- The graphic representation in time.

B.6 Modulated signals
- Amplitude modulation.
- Single-sideband modulation.
- Frequency modulation.
- Carrier, sidebands and bandwidth.

B.7 Power and energy
- DC input power.
- RF output power.

C. COMPONENTS

C.1 Resistor
- Resistor.
- The unit ohm.
- Power dissipation.
- Color Code

C.2 Capacitor
- Capacitance.
- The unit farad.
- Use of fixed and variable capacitors, air-, mica-, synthetic-, ceramic and electrolytic capacitors.

C.3 Coil
- Self-inductance
- The unit henry

C.4 Other components
- Transformers.
- Rectifier diode.
- Sender diode.
- Transistor (application as amplifier)
- Transistor (application as oscillator)

D CIRCUITS
D.1 A combination of components
- Series and parallel circuits of resistors and capacitors.

D.2 Filter
- Series-tuned and parallel-tuned circuit.
- Frequency characteristic.
- Impedance.
- Resonance frequency.
- Low-pass, high-pass, band-pass and band-stop filters, composed of passive elements (only application and use).

E. RECEIVERS

E.1 Types
- Single superheterodyne receiver.
- Direct conversion receiver.

E.2 Block diagrams
- AM receiver (A3E).
- FM receiver (F3E).
- CW receiver (A1A).
- SSB receiver (J3E).

E.3 Operation and function of the following stages (Block diagram treatment only)
- Hf amplifier.
- Oscillator (fixed and variable).
- Mixer.
- Intermediate frequency amplifier.
- Detector.
- Interference-oscillator (BFO).
- LF-amplifier.
- Automatic gain control.
- Feeder
- Noise suppressor squelch. (only purpose).

F. TRANSMITTERS

F.1 Block diagrams
- FM- transmitter (F3E).
- CW- transmitter (A1A).
- SSB- transmitter (J3E).

F.2 Operation and function of the following stages (Block diagram treatment only)
- Mixer.
- Oscillator (crystal and VFO).
- Buffer (Separating trap).
- Driver
- Frequency multiplier.
- Power amplifier.
- Output filter (Pi filter).
- Frequency modulator.
- SSB modulator.
- SSB filter.
- Feeder.

F.3 Transmitter characteristics
- Frequency stability.
- Hf bandwidth.
- Lf bandwidth.
- Sidebands
- Output power.
- Spurious RF-radiation.
- Harmonics.

G. ANTENNAS AND TRANSMISSION LINES

G.1 Antenna types (only composition, directional characteristics and polarisation)
- Center fed half-wave antenna.
- End fed antenna.
- Quarter wave vertical antenna (ground plane).
- Antenna with parasitic elements (Yagi).

G.2 Transmission lines
- Composition and use of open line and co-axial cable.
- Advantages and disadvantages of open line and co-axial cable.
- Antenna tuning unit (only purpose).

H. PROPAGATION AND FREQUENCY SPECTRUM

Propagation
- Ionospheric layers and the effect on the Hf-propagation.
- Fading.
- Troposphere.
- The influence of the sunspot cycle on communication.
- The influence of meteorological circumstances on the VHF/UHF-propagation.

Frequency spectrum
- HF, VHF, UHF frequency regions.

I. MEASUREMENTS

I.1 Making measurements
Measurement of:
- DC and AC voltage.
- DC and AC current.
- Resistance.
- DC and RF power.
- Frequency.
- Resonant frequency.

1.2 Measuring instruments
Making measurements using:
- Universal meter (analog and digital).
- Standing wave meter.
- Frequency counter.
- Absorption-frequency meter.
- Dip meter.
- Artificial antenna (dummy load)

J INTERFERENCE AND IMMUNITY

J.1 Interference in electronic equipment
- Interference with the desired signal (TV, VHF or broadcast)
- Low-frequent detection.

J.2 Cause of interference in electronic equipment
- Field strength of the transmitter.
- Spurious radiation of the transmitter (parasitic radiation, harmonics).
- Undesired influence of the disturbed equipment:
  - via the antenna input;
  - via other connected lines (mains cable, loudspeaker cable and the like)
  - by direct radiation.

J.3 Measures against interference
Measures to prevent and eliminate interference effects:
- Filtering.
- Decoupling.
- Shielding.
- Distance between sender antenna and radio-TV-antenna
- Avoiding the use of end-sensitive antennas.
- Minimum power
- Proper hf-grounding.
- Social aspects (good relationships with the neighbors).

K SAFETY

K.1 The human body
- The consequences of electric shock.
- Preventive measures against electric shock.

**K.2 Mains power supply**
- Difference in color code between, phase, zero and ground (color code).
- The importance of proper ground connections.
- Rapid and slow safety devices, values of safety devices.

**K.3 Dangers**
- Charged capacitors (condensers).
- High voltages

**K.4 Lightning discharge**
- Danger.
- Protection.
- Installation of grounding.
Annex 4 pertinent to the Ministerial Decree with general operation of the 14th of April, 2000 for the implementation of sections 5 and 6 of the National Resolutions on amateur radio operators (P.B.1999, no. 209)

ITU RESOLUTION NUMBER 640

Respective to the international use of radio-communication in the frequency bands allocated to the amateur radio operator in the event of natural calamities.

The World Administrative Radio conference in Genève, 1979,

considering:

that in the event of natural calamities normal communication systems are often overburdened, damaged or entirely interrupted;

that achieving a rapid communication is essential for realizing worldwide aid;

that the frequency bands allocated to amateur radio operators are not bound by international planning and notification procedures, and therefore are eminently suitable for short term use in case of calamities;

that the international communication in case of calamities is facilitated by the use of certain bands which have been allocated to the amateur radio service;

that that under such circumstances stations belonging to the amateur radio service, by their great spread and their proven skills in such circumstances, are able to render assistance for bringing about the necessary radio communication;

the existence of national and regional amateur emergency connections which utilize the frequency bands allocated to the amateur radio service;

that in the event of a natural calamity, the direct link between amateur stations and other stations, may accomplish and maintain vital communication until the normal links have been repaired;

recognizing:

that the rights and responsibilities for links during a calamity, is a responsibility of the administrations concerned;

resolves:

1. that the bands allocated to the amateur radio service, as referred to sub 510, may be used by the administrations, to meet the needs of the international communication in case of calamities;
2. that the use of these bands is restricted to the communication for the benefit of organizations which provide aid in the event of natural calamities;

3. that the use of the indicated bands, which have been allocated to the amateur radio service, by non-amateur stations for calamity-related communication, shall be restricted to the duration of the emergency situation and limited to such geographic regions as are described by the responsible authorities of the afflicted country;

4. that the calamity-related communication shall take place within the calamity region and between the calamity region and the permanent centers of the organization providing aid;

5. that this type of communication shall be effectuated with the permission of the administration where the calamity occurred;

6. that links concerning aid provided outside of the country where the calamity took place, may not replace the existing national or international amateur emergency links;

7. that a close co-operation is desirable between the amateur radio operator and the stations of other services, who deem it necessary to make use of the amateur radio frequencies in case of an emergency;

8. that the international emergency links, to the extent possible, shall avoid interference to the networks of the amateur radio service.

invites the administrations:

1. to provide for the necessities of the international links in the event of calamities;

2. to make provisions for the necessities of emergency links within their national legislation.
NATIONAL RESOLUTION WITH GENERAL OPERATION of the 14th of October, 1999 pertaining to the implementation of the sections 13 through 16, 19, 31 and 33 of the National Ordinance on telecommunication provisions (Publication Sheet 1995, no.196), relative to amateur radio operators (National Resolution on amateur radio operators)

IN THE NAME OF THE QUEEN!

THE GOVERNOR GENERAL of The Netherlands Antilles,

Having taken into consideration:

that it is desirable, in view of the implementation of the sections 13 through 16, 19, 31 and 33 of the National Ordinance on telecommunication provisions (Publication Sheet 1995, no.196), to regulate the telecommunication effected by amateur radio operators to supplement the regulations already in existence by virtue of and enforceable through the National Resolution on radio-electric installations (Publication Sheet 1998, no. 18);

Has resolved, after consultation with the Advisory Council

§ 1 Definitions

Section 1

In this national resolution and the provisions derived from it, the following terms shall have the meaning thereby given:

a. National Ordinance : the National Ordinance on telecommunication provisions (Publication Sheet 1995, no.196);
b. Minister : The Minister of Traffic and Transportation;
c. Director : The director of the Bureau Telecommunication and Post;
d. decree : the decree through which a license has been granted;
e. certification : the certification provided by the Director to empower an amateur radio operator to qualify as such, after having successfully passed an examination as referred to in Section 6;
f. license : the license to have a radio-electric transmitter and receiver, as referred to in section 15, first paragraph, and section 16 of the National Ordinance relative to the
g. amateur radio operator: a person authorized as such, who, from a purely personal purpose and without any financial advantage, experiments in the field of radio communication;

h. amateur (radio) station: a transmitter and receiver for radio telegraphy or radio telephony, intended for experimenting in the field of radio communication;

i. radio telegraphy: telecommunication via the ether by means of Morse Code;

j. radio telephony: telecommunication via the ether by means of speech;

k. type of transmission: a designation consisting of three symbols, which respectively indicate the type of modulation of the carrier wave, the type of signal which modulates the carrier wave and the type of information which is being transmitted. The meaning of the symbols is given in annex 1 pertaining to this national resolution;

l. bandwidth: the difference in frequency between the highest and lowest frequency within which during modulation 99% of the transmitted energy is perceived;

m. undesirable high-frequency radiation: all high frequency radiation on other frequencies, apart from the transmission frequency and the frequency in the frequency bands, which are necessarily occupied in connection with the modulation process;

n. transmission power:
   - with application of frequency- or phase modulation: the average power provided by directly connecting the trap of the transmitter with the antenna installation;
   
   - with the other modulation applications: 25% of the average power provided by the directly connected trap of the transmitter to the antenna installation, calculated over a period of high frequency alternating voltage at exit during the maximum of the modulating signal;

o. permitted emitting power: the value of the transmission power that may not be exceeded during the use of the transmitter;

p. maximum emitting power: the value of the transmission power, which may not be exceeded as a result of the construction of the transmitter.

§ 2 General provisions
Section 2.

With respect to telecommunication provisions for the benefit of amateur radio operators, the rules given by and in virtue of the National Resolution on radio-electric installations (Publication Sheet 1998, no.18) shall be in force without detriment, unless otherwise stipulated, as well as the provisions to be stated herein after.

Section 3

In deviation from section 34, first paragraph, of the National Resolution on radio-electric installations, the licenses granted to amateur radio operators shall be granted for a period not exceeding ten years.

Section 4

1. Amateur radio operators shall obtain a license if they possess a certification issued by the Director, qualifying them as amateur radio operators. Such certification shall be issued after they have successfully passed an examination purporting thereto.

2. In deviation from the first sub-section, the license referred to in section 5, first sub-section of the therein stated persons of Dutch citizenship and other nationalities, shall be considered as a license in the sense of this national resolution for a period of three months after their arrival within the Netherlands Antilles.

3. In deviation from the first sub-section, the persons referred to in section 5, first sub-section sub a and b, of Dutch citizenship and other nationalities, shall be granted a license against payment of a fee to be determined by the Minister, after they have submitted the valid license from their country of origin, after expiration of the three month period referred to in the second sub-section.

4. In deviation from the first sub-section a license shall be granted to a teaching institution, recognized by the Minister of Education, Culture, Youth and Sports Affairs, at which institution telecommunication is part of the subject-matter of teaching included in its curriculum, provided that the person in charge of teaching the subject of tuition regarding amateur radio operations is in possession of a license A qualifying him as an amateur radio operator as referred to in section 22.

5. In deviation from the first sub-section a license may also be granted to a locally established association of amateur radio operators, which has the status of a legal entity.

Section 5
The following persons are exempted from passing an examination:

a. Dutch citizens who are in possession of a valid Dutch license, qualifying them as amateur radio operators;
b. Persons of another nationality, provided that they are in possession of a valid license of a country which is associated with the Conférence Européenne des Administrations des Postes et des Télécommunications (CEPT);
c. Persons of another nationality, who remain within the Netherlands Antilles for a period not exceeding three months, provided that they are in possession of a valid license from their country of origin, which country admits amateur radio operators from the Netherlands Antilles on the basis of reciprocity for a similar period without additional requirements.

Section 6

1. The examination referred to in section 4, shall be conducted by a committee to be installed by national resolution.

2. No appeal is admitted against the decision of the committee.

3. The Minister shall determine a regulation for the examination and also determines the requirements which have to be met in order to obtain a license as an amateur radio operator. In said regulation may also be stipulated that the Minister is authorized in specific cases, to grant exemptions in whole or in part, if in another manner, to be determined by the Minister, the examination requirements have been met.

4. The applicant shall only be admitted to the examination, or a part thereof, or else for the exemption, after payment has been received of the fee payable pursuant to section 31, sub a of the National Ordinance.

5. The examination is taken either in the Dutch or in the English language.

6. The Director shall maintain a register of the certifications granted to qualify amateur radio operators in such capacity.

Section 7

The Director may, at the request of an interested party, issue an excerpt from the register, evidencing the certification, which qualifies the licensee as an amateur radio operator, in accordance with the international requirements thereto in effect, such in order to obtain a license in countries with which the Kingdom of the Netherlands has signed bi-lateral or multi-lateral agreements of reciprocity. This excerpt shall be valid for the period of one year and shall be drawn up in either the English or the Spanish language.