

**MEMORANDUM CIRCULAR  
NO. 07-06-98**

**SUBJECT: Amendments To Memorandum Circulars 02-01-97 And 01-01-98 And Providing Additional Licensing Guidelines And Procedures For Short Range Radio Service (SRRS)**

Pursuant to the provisions of Republic Act No. 7925, Act No. 3846 as amended, Executive Order No. 546, and other applicable laws, the Commission hereby promulgates the following guidelines and procedures in the licensing of portable radio transceiver in the short range radio service:

**A. Definition of Terms**

For the purpose of this Circular, the following terms are defined hereunder:

1. **Short Range Radio Service (SRRS)** - a private radio communication system in the Land Mobile Service limited to portable transceiver for short-range communications.
2. **SRRS Special Permit** - an authority issued by the National Telecommunications Commission to individuals and/or entities for the possession and operation of a radio station under the Short Range Radio Service.
3. **Type Acceptance** - a certification issued by the Commission for SRRS radio equipment upon compliance with the SRRS Technical Standards and Specifications set forth in Attachment A of this Circular and where equipment has already been type approved by an administration whose certification is acceptable. This process does not require laboratory testing and issuance is based on the type approval certificate issued by the administration whose certification is acceptable and test reports issued by the competent authorities/administrations.
4. **Type Approval** - a certification issued by the Commission for SRRS equipment complying with the Technical Standards and Specifications set forth in Attachment A of this Circular. This process requires laboratory testing.
5. **Portable unit** - a handheld unit which may be conveniently moved from place to place or personally carried and be operated while in motion or during temporary halts.
6. **Repeater or relay system** – station that receives a signal and re- transmit it from a remote location.



## **B. Technical Parameters**

1. The frequencies channels allocated for SRRS are on shared usage and Non-Interference Basis.
2. The use of linear amplifier/ booster and external antenna for SRRS strictly prohibited.
3. The radio equipment for SRRS shall comply with the following:
  - a. Fixed and non-extendable frequency range.
  - b. Portable station shall only have a maximum transmitter power output of 2.5 wafts.
  - c. Frequency modulated utilizing voice emission.
  - d. Duly type approved/accepted by the Commission.
  - e. Fixed or non-standard fitting type antenna.
4. The frequency band allocated for RRS shall be 325.0000 - 325.4875 Mhz using 12.5 KHz channeling plan.
5. The technical specification of the radio equipment shall conform with the Technical Specification in Attachment - A of this Circular.
6. Any radio transceiver that meets the technical specification of SRRS shall be allowed under this service, after having been type accepted/approved by the Commission.
7. Data communication is prohibited.
8. Interconnection to the Public Switch Telephone Network (PSTN) is prohibited.
9. The use of external repeaters or relay system is not allowed.
10. The NTC Licensing Guidelines and Procedures for Short Range Radio service (SRRS), SRRS Information Sheet (see Annex C), as well as the general rules and etiquette in the proper radio usage shall be incorporated in the Equipment Manual.

## **C. Application for Type Approval Acceptance**

1. Type Acceptance

Applicants are required to submit a duly accomplished type acceptance application form together with the following items:



- Type acceptance fee
- Certified copy of the type approval certificate from an administration/ authorities whose certification is acceptable together with a certified copy of the test results
- Full technical/service documents giving detailed description of the equipment's technical specifications, method employed in testing the equipment, schematic diagrams, board components layout, and components parts list.
- Color photographs of the equipment, in sufficient size (not less than 20 cm. x 25 cm.), to show clearly the equipment's external and internal (with dust cover removed) appearance.

2. Type Approval

Applicants are required to submit a duly accomplished type approval application form together with the following items:

- Type approval fee
- Model or prototype of radio transceiver to be type approved (with test accessories)
- Full technical/service documents giving detailed description of the equipment's technical specifications, method employed in testing the equipment, schematic diagrams, board components layout, components parts list.
- Color photographs of the equipment, in sufficient size (not less than 20 cm. x 25 cm.), to show clearly the equipment's external and internal (with dust cover removed) appearance.

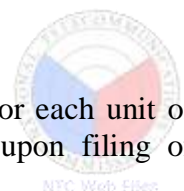
3. Application forms shall be secured from the Commission

4. Markings

A tamper proof label as specified in Annex B.

**D. Importation of Radio Equipment**

1. A permit to import and a corresponding special permit number for each unit of SRRS shall be granted only to NTC authorized radio dealer upon filing of



application and the payment for permit to import and the Special Permit fee per SRRS radio equipment.

A Special Permit fee per SRRS unit shall also be paid and be issued a corresponding special permit number for each SRRS radio equipment to be manufactured locally.

- 2. All radio dealers and manufacturers shall submit to the Commission a regular sales and stock report for SRRS which shall include the serial number and corresponding special permit number per unit of all imported and/or locally manufactured SRRS radio equipment.
- 3. A manufacturer of SRRS radio communications equipment foreign or local, shall be accredited by the NTC to ensure compliance with the rules and regulations of the Commission.
- 4. No Authority to Import shall be issued to dealers if the source of the equipment is not from an NTC accredited manufacturer
- 5. Manufacturers of SRRS equipment shall comply with the Special Permit Number assigned by the NTC.

**E. Licensing, Collection and Type Approval Acceptance Fees**

1. A one time special permit fee of One Thousand pesos (PHP 1,000) per SSRS unit shall be collected upon application from NTC authorized radio dealers in accordance with Section D-1 above.

2. Any SRRS radio transceiver purchased from any authorized radio dealer shall be issued with a corresponding SRRS special permit number per unit issued by the Commission which shall serve as the SRRS Special Permit.

3. Type Approval

Filing Fee	PHP	150.00
Laboratory fee		5,000.00
Certificate fee		1,200.00

4. Type Acceptance

Filing fee	PHP	150.00
Certificate fee		1,200.00



5. The issuance of SRRS Special Permit shall be at the NTC Central Office (RRLD) unless otherwise modified by the Commission.
6. The Dealer shall submit to NTC the original copy of the SRRS Information Sheet together with the Sales and Stock Report

**F. Administrative Sanction**

Any person and/or entity who shall purchase, possess and/or operate an SRRS radio equipment without SRRS special permit or sell SRRS radio units without being an NTC accredited radio dealer and fails to submit the regular registration of their sales and stock report, shall be dealt with in accordance existing Radio Laws and Regulations.

**G. Effectivity**

This Circular shall take effect 15 days revoked or amended, in the interest of public after publication and may be service and Commission.

Any circular, order or Memorandum, which is inconsistent herewith, is deemed superseded.

Quezon City, Philippines 25th June 1998.

**(Signed)**  
**FIDELO Q. DURLAO**  
Acting Commissioner

**(Signed)**  
**CONSUELO S. PEREZ**  
Deputy Commissioner

**(Signed)**  
**TEODORO Y. YABES**  
Deputy Commissioner



## Attachment A

# TECHNICAL STANDARDS AND SPECIFICATIONS OF RADIO TRANSCEIVERS IN THE SHORT RANGE RADIO SERVICE (SRRS) IN THE PHILIPPINES

## 1. GENERAL REQUIREMENTS

### 1.1 Scope of Specification

1.1.1 This specification prescribes the minimum requirements for the type approval of multi-channel portable radio for localized communications (Short Range Radio Service).

1.1.2 For equipment covered by this specification, the maximum transmitter output power allowed shall not exceed 3 watts and the nominal carrier frequency separation between adjacent channels shall be 12.5 kHz.

1.2 Frequency Band - The equipment shall be designed to operate on the frequency band 325.0000 to 325.4875 MHz.

1.2.1 The 40 single-frequency channels listed in Annex A are allotted on a shared use basis. The radio must not be capable of operating on any frequencies other than those provided in this specification.

1.2.2 No radio shall be type approved or type accepted if it is capable of being user or dealer altered to operate on frequencies other than those provided in this specification.

## 2. MARKINGS

The equipment shall have external and internal markings as specified in Annex B.

## 3. RADIO TRANSCEIVER SPECIFICATIONS

- |     |                                 |   |                                  |
|-----|---------------------------------|---|----------------------------------|
| 3.1 | Type of Emission                | : | FM only (11 KOF3E)               |
| 3.2 | Transmitter Output Power        | : | 2.5W                             |
| 3.3 | Modulation Limiting             | : | $\pm 2.5$ kHz                    |
| 3.4 | Conducted Spurious Attenuation: |   | $(dB) = 43 + 10 \log P$ in Watts |



	Emissions (Tx)	:	P = rated carrier power
3.5	Frequency Error	:	$\pm 3$ ppm
3.6	Conducted Spurious Emission (Rx)	:	20 nW or less

3.7 The equipment must be equipped with Continuous Tone Code Sub-audible Squelch (CTCSS - EIA 220 8) capability, with a minimum number of 10 distinct tones from the list provided in Annex A.

3.7.1 Additional CTCSS tones and other coded squelch systems may be installed without restriction.

3.7.2 A manual or automatic means to monitor the channel prior to use or a means to prevent transmissions on occupied channels shall be fitted

3.8 The equipment must be equipped with unique antenna fittings and matching antenna with a maximum gain of unity.

3.8.1 BNC, type N, and *PUSO* series antenna fittings are not allowed.

3.8.2 The equipment must not be supplied to the end user with antenna fitting adapters.

#### 4. STANDARD TEST CONDITIONS

##### 4.1 Definition

Standard test conditions are those conditions which shall apply to the equipment while it is being tested for the minimum standard in this Specification unless otherwise specified.

##### 4.2 Test Voltage

The test voltage shall be within  $\pm 2\%$  of the value stated by the manufacturer and shall be measured at the point of power connection to the equipment.

##### 4.3 Test Atmospheric Conditions

The test atmospheric conditions are the average temperature and humidity of the atmosphere prevailing in the room in which the equipment is tested. It shall be within the following limits:

Temperature	:	25 <sup>0</sup> C to 50 <sup>0</sup> C
Relative Humidity	;	20% to 75%

##### 4.4 Transmitter Test Modulation



The standard test modulation shall be a 1000 Hz sinusoidal audio input signal having 1% or less total harmonic distortion applied at a level required to produce a 1.5 kHz deviation in accordance with 12.5 kHz channel spacing.

4.5 Transmitter Output Load

The standard transmitter output shall be a resistive termination load equal to the nominal load into which the transmitter operates. The nominal impedance of this load shall be 50 ohms unless otherwise stated by the manufacturer.

4.6 Transmitter Loading Conditions

The transmitter loading conditions shall be specified by the manufacturer.

4.7 Transmitter Input Signal

The transmitter input signal source shall be an audio frequency generator which shall be connected to the microphones electrical inlet, the source impedance of the generator shall be 600 ohms nominal unless otherwise specified by the manufacturer.

4.8 Warm-up Period

The equipment may have a 15-minute warm-up period under standby conditions prior to all tests, except when otherwise specified.

4.9 Standard Test Frequency

Except when otherwise specified, all tests shall be conducted on the highest and lowest channels within the switching range of the equipment and on a channel near the middle of the switching range.

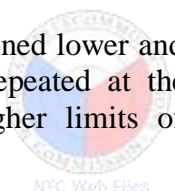
5. EXTREME TEST CONDITIONS

5.1 Extreme test conditions are the extreme temperatures and the extreme test voltages, which shall be applied to the equipment during some of the tests.

The extreme temperatures shall be +10<sup>0</sup>C and +60<sup>0</sup>C.

The extreme test voltages shall be at ±10% of the standard test voltage.

The equipment shall be tested at standard test voltage, at the above mentioned lower and higher limits of temperature range. the measurements shall then be repeated at the extreme limits of the test voltage range, at the same lower and higher limits of temperature range.





The relative humidity shall not exceed 15% at +10<sup>0</sup>C and +600 to avoid excessive condensation.

## 5.2 Method of Measurement

Before starting the tests at the extreme test conditions, the equipment shall be evaluated for the performance characteristic under standard test conditions.

While at ambient temperature, the equipment shall be placed into the test chamber in the switched off condition.

The chamber shall then be set to the specified temperature limit.

The equipment shall be exposed to the specified temperature limit for an hour after which its temperature would reach thermal equilibrium within the chamber.

The equipment shall then be switched on and operated at standard test voltage to check whether it is capable of functioning.

### 5.2.1 For Measurements at Lower Temperature Limit

The equipment shall be switched off and exposed to the lower temperature condition for a further period of two hours without forced circulation of air directly on the equipment.

At the end of this period, the equipment is switched on for one minute and evaluated for the performance characteristic at the lower and higher voltage respectively.

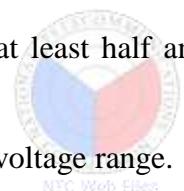
After all measurements are made, the chamber shall be set at room temperature and the equipment shall be removed from the chamber only after equilibrium has reached and sufficient time allowed for the recovery period.

### 5.2.2 For Measurements at Higher Temperature Limit

For transmitter test, the equipment shall remain in operation under following duty cycle condition for at least half an hour before the equipment is evaluated for the performance characteristic: one minute transmit at rated radio frequency output power and four minutes standby.

For receiver tests, the equipment shall remain in standby condition for at least half an hour before the equipment is evaluated

The measurements shall be made at the lower and higher limits of the test voltage range.



After all measurements are made, the equipment shall be subjected to the same recovery period as in Section 4.2.1.

## **6. TRANSMITTER TESTS**

### **6.1 Carrier Power**

The carrier power is the average power available at the output terminals of the equipment in the absence of modulation when the output terminals are connected to the nominal load condition specified by the manufacturer.

#### **6.1.1 Method of Measurement**

The carrier power output shall be measured under the standard test conditions without modulation for a period of 30 minutes using 1-minute “transmit” and 4 minutes “standby”.

The carrier power output measurement shall be repeated under the extreme test conditions as in Section 5.

#### **6.1.2 Limits**

The manufacturer under standard test conditions shall within +1 dB and -1.5dB of the rated Value State the carrier power output. The manufacturer under extreme test conditions shall within  $\pm 2$  dB of the rated value state it.

### **6.2 Modulation Limiting**

Modulation limiting refers to the ability of the equipment to prevent its modulation from exceeding the maximum permissible deviation for the corresponding separation of adjacent channels.

#### **6.2.1 Method of Measurement**

The deviation shall be measured at the output of the transmitter in a proper loading condition by means of a deviation meter. With a modulation frequency of 300 Hz the audio input level shall be increased by 20 dB (in steps of 10 dB) above that level required at 1000 Hz to produce 60% of the maximum permissible deviation. The instantaneous peak and the steady state deviations shall be observed.



The modulation frequency shall then be varied from 300 Hz to 3000 Hz.

#### 6.2.2 Limits

The transmitter maximum instantaneous peak and steady state deviation shall not exceed  $\pm 2.5$  kHz.

### 6.3 Conducted Spurious Emissions

Conducted spurious emissions are any discrete radio frequency emissions which are transmitted by the transmitter at the antenna terminals other than its specified carrier frequency and modulation products within its authorized bandwidth.

Note: Spurious emissions include harmonic, non-harmonic and parasitic emissions and intermodulation products.

#### 6.3.1 Method of Measurement

Conducted spurious emissions shall be measured while the unmodulated transmitter is connected to its load as specified in Section 4.5 and 4.6. Measurements of individual spurious emission shall be made using a tuned RF measuring instruments or a spectrum analyzer.

The measurement shall be made over the frequency range from 100 kHz to 1500 MHz.

#### 6.3.2 Limits

The power of any conducted spurious emissions shall be attenuated below the maximum level of carrier frequency in accordance with the following formula:

Attenuation (dB) =  $43 + 10 \log P$  where P = carrier power output in Watts

### 6.4 Frequency Error

Frequency error is the difference between the unmodulated carrier frequency and the assigned frequency. The frequency error is expressed in parts per million.

#### 6.4.1 Method of Measurement

The frequency error is determined by measuring the carrier frequency in the absence of modulation under standard test conditions.

The carrier frequency shall be measured with a frequency counter with an accuracy that is at least ten times more precise than the minimum standard specified below.



#### 6.4.2 Limits

The frequency error shall not exceed  $\pm 3$  PPM under standard and extreme test conditions.

### 7. RECEIVER TESTS

#### Conducted Spurious Emissions

Conducted spurious emissions are emissions at any frequencies emitted at the antenna terminals of the equipment in the receiver mode.

#### 7.1.1 Method of Measurement

Conducted spurious emissions shall be measured across a resistive load at the equipment antenna terminals.

Measurements of individual spurious emissions shall be made using a frequency selective voltmeters or a spectrum analyzer.

The measurement shall be made over the frequency range from 100 kHz to 1500 Mhz.

#### 7.1.2 Limits

The power measured at any spurious frequency shall not exceed 20 nanowatts.



**Channel Frequencies  
(Mhz)**

The channel frequencies are:

1. 325.0000	12. 325.1375	23. 325.2750	34. 325.4125
2. 325.0125	13. 325.1500	24. 325.2875	35. 325.4250
3. 325.0250	14. 325.1625	25. 325.3000	36. 325.4375
4. 325.0500	15. 325.1750	26. 325.3125	37. 325.4500
5. 325.0500	16. 325.1875	27. 325.3250	38. 325.4625
6. 325.0625	17. 325.2000	28. 325.3375	39. 325.4750
7. 325.0750	18. 325.2152	29. 325.3500	40. 325.4875
8. 325.0875	19. 325.2250	30. 325.3625	
9. 325.1000	20. 325.2375	31. 325.3750	
10. 325.1125	21. 325.2500	32. 325.3875	
11. 325.1250	22. 325.2625	33. 325.4000	

**CTCSS Code Frequencies  
(Hz)**

The standard frequencies are:

67.0	71.9	74.4	77.0
79.7	82.5	85.4	88.5
91.5	94.8	100.0	103.5
107.2	110.9	114.8	118.8
123.0	127.3	131.8	136.5
141.3	146.2	151.4	156.7
162.2	167.9	173.8	179.9
186.2	192.8	203.5	210.7
218.1	225.7	233.6	241.8
250.3			



## MARKINGS

- 1 The SRRS radio equipment shall have an external front marking as follows:

**PHILIPPINES 2000**  
**NTC-SRRS**

Letters shall be printed in blue with white background.

2. The SRRS radio equipment shall have a tamper proof internal Special Permit No. marking as follows:

**SP No.** \_\_\_\_\_



**SRRS  
INFORMATION SHEET**

Name \_\_\_\_\_  
Address \_\_\_\_\_  
\_\_\_\_\_

Tel. No. \_\_\_\_\_  
-----

SRRS SP No. \_\_\_\_\_  
Date Purchased \_\_\_\_\_  
Dealer \_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Signature Date

Note: To be submitted to NTC together with the Sales and Stock Report.



