

Consultation paper no. TECH#2@2019



***‘creating a level playing field’***

**CONSULTATION PAPER ON LICENSING OF  
PMR 446 RADIOS IN ZIMBABWE**

CONSULTATION COMMENCEMENT DATE	01/04/19
CONSULTATION CLOSING DATE	02/05/19

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## 1. Introduction

POTRAZ is considering the adoption of Class Licensing for PMR446 and DMR446 radios, in line with SADC Guidelines and established international best practice.

Due to the world-wide harmonisation of standards and licensing condition for PMR446 and DMR446 radios, such devices are commonplace and sold off-the-shelf in supermarkets, duty-free shops at airports and D.I.Y shops across the globe.

Under the circumstances, a number of private citizens have bought such radios assuming that Zimbabwe adopted the Class-Licence regime in line with international best practice. Many have been disappointed upon realising that, in Zimbabwe, for this class of radio, the international practice does not apply. Oftentimes such well-meaning individuals are requested to surrender the equipment at the port of entry or are requested to return the devices to their country of origin. In some cases, individuals have been arrested for illegal possession or operation of such devices.

In line with the Government's thrust on Opening Zimbabwe for Business, POTRAZ intends to make it legal to import and operate PMR446 and DMR446 radios under specified technical and regulatory conditions, in line with international practice.

## 2. Private Mobile Radio

### 2.1 Overview of PMR

Private Mobile Radios (PMRs), sometimes called Walkie Talkies, are mobile devices that operate within certain sub-bands of High frequency (HF 3-30 MHz), Very High Frequency (VHF 30- 300 MHz) and Ultra High Frequency (UHF 300 – 3000 MHz) bands. PMRs were developed for business users who need to keep in contact over relatively short distances with a central base station, also called a dispatcher. PMR networks consist of two or more handheld radios and may include a basestation.

The frequency at which the radios operate is one of the factors that influence the maximum communication distance between the radios, with higher frequencies resulting in shorter distances. Users prefer the lower frequency bands which allow them to get the widest coverage, so that they can communicate over the largest possible area. Users, once licenced, do not have to think about the cost of communicating with each other, as there are no monthly or call duration based charges.

## 2.2 Features of PMR446

PMR 446 is defined as short-range analogue two-way radio equipment that operates in the 446.0 – 446.2MHz band and DMR446 is the digital variant of such equipment. Accordingly, PMR446 and DMR446 radios (walkie-talkies) are handheld terminals that conform to the following technical characteristics:

- i. Operating frequency band 446.0 – 446.2MHz
- ii. Channel plan: 12.5 kHz for analogue and 6.25KHz for digital systems.
- iii. EMC Standards: EN 300 296-2, EN 300 113-2 and EN 301 166-2.
- iv. EIRP : 0.5W
- v. Antenna: Integral

The PMR446 radio service is a voice only communication system which provides a simple, economical and effective short-range radio service for use by businesses, individuals and other untrained users. Unlike Professional Radios, PMR446 radios come pre-programmed with the frequencies and transmit power at which they are to operate. Therefore, for the end users, all what is needed is to switch a pair of radios on and select the same channel for communication to take place. The system is licence free in many countries that have adopted the standard.

Permitting the use of PMR 446 would allow low-cost short-range communication between family members or people who are on an outing together.

PMR446 is the name given to two-way radios operating in frequencies between 446.0 to 446.2 MHz. These devices provide short-range, peer-to-peer voice only communications offering a basic, but effective radio service for both the business and non-business users. PMR446 is ideal for providing communication within a local area such as office buildings, factories, shops and building sites. The PMR446 is intended to operate on collective frequencies shared by many users on an uncoordinated basis. It is more ideal in situations where instant voice communication is required over distances of up to 6km. The equipment is hand-portable (no base station or repeater use), uses integral antennas only and is limited to a maximum power of 0.5W in order to maximise sharing and minimise interference.

### **3. Licensing Conditions for PMR446**

In most countries across the world, PMR446 and DMR446 radios operate under a Class Licence, as is the case for Wi-Fi and other short-range devices. A precondition for a Class Licence is that a device should meet stipulated technical specifications in order for it to be allowed to operate on a licence-exempt basis, albeit under predefined regulatory conditions.

For effective Regulation of PMR446 in Zimbabwe, it is proposed that:

- 3.1** PMR446 radio equipment be free from individual licensing;
- 3.2** All equipment for use on PMR446 frequencies be hand-portable (equipment fitted with an integral antenna, used on a stand-alone basis and to be carried on a person or manually operated);
- 3.3** All equipment for use on PMR446 operates with a fixed integral antenna (antenna designed as a fixed part of the equipment) in order to maximise sharing and minimise interference;
- 3.4** PMR446 radio equipment operates with an effective radiated power not exceeding 500mW (0.5 watts);
- 3.5** For analogue PMR446, the band 446.0-446.2 MHz shall be used with a channel plan based on 12.5 kHz spacing where the lowest carrier frequency shall be 446.00625 MHz;
- 3.6** For digital PMR446, the band 446.0-446.2 MHz shall be used for digital PMR446 with a channel plan based on 6.25 kHz and 12.5 kHz spacing where the lowest carrier frequencies shall be 446.003125 MHz and 446.00625 MHz respectively;
- 3.7** The use Base stations, mobile radios, repeaters or fixed infrastructure be prohibited in the band;
- 3.8** Equipment be type approved by POTRAZ before being sold or used.
- 3.9** Users to accept without complaint when their channel is being used by someone else

Further to the above conditions for licensing PMR446, it should be noted that:

- a) The PMR446 frequencies are shared and users may experience interference and channel sharing problems in densely populated areas such as cities, where usage is high.
- b) The problems associated with the high levels of use of the PMR446 frequencies may be reduced by making use of systems such as Continuous Tone Coded Squelch System (CTCSS) and Digital Coded Squelch (DCS) codes.
- c) In view of the unlicensed nature of PMR446 and the possible high usage of the frequencies, the scheme is not suitable for safety of life use or for users who need to have access to frequencies at particular locations and times.
- d) Unlike many licensed services, users of licence-exempt devices need to be aware that there are no guarantees that the spectrum will be free of

interference. The PMR446 radios operate on a non-interference non-protection basis. This means that no claim of protection can be made if interference is received from any other device or service. It also means that, any other PMR446 radio, within the transmission range of a communicating pair, tuned to the same channel, can hear all communications clearly, i.e. there is no privacy.

#### 4. Consultation Questions:

- i) Does this description fit your understanding of Private Mobile Radios (Walkie Talkies)?
- ii) *Do you agree with the definition of PMR446 given above?*
- iii) *Do you agree that Zimbabwe should allow the importation of PMR446 radios into Zimbabwe?*
- iv) *Do you agree that PMR446 radios should be allowed to Operate without Individual Licensing?*
- v) Do you agree that only hand portables with integral antennas should be used for PMR446
- vi) *Do you agree that only 0.5W maximum should be allowed for transmissions in the band?*
- vii) *Do you agree that PMR446 users shall not be guaranteed privacy of communication and protection from interference?*
- viii) *Do you agree that CTCSS and DCS should be allowed to be used in the band?*

#### 5. Guidance to prospective responders:

5.1 The consultation begins on the 1<sup>st</sup> of April 2019 and closes on the 2<sup>nd</sup> of May 2019.

5.2 Responses can be sent to [pmr446@potraz.gov.zw](mailto:pmr446@potraz.gov.zw) or by post to

The Director General  
POTRAZ  
Block A

Mt. Pleasant Business Park  
1008 Performance Close  
P.O. Box MP843  
Mt Pleasant  
Harare

**5.3** All responses and correspondence relating to this consultation should reference this Consultation number **TECH#2@2019**.

**5.4** POTRAZ reserves the right to publish the comments and responses received, showing the identity of the submitting party.

**5.5** POTRAZ is not obliged to respond or accept any comments it receives from any party.

**5.6** Responses provided electronically should be in Microsoft Word or Adobe PDF format and must be accompanied by the full contacts details (contact name, email address and phone/fax numbers) of the respondent;

## **6. Confidentiality**

Any information considered by the respondent to be confidential information shall be clearly marked.

## **7. Language**

POTRAZ will accept responses in either English, Shona or Ndebele. A mix of two or more languages in a single response will not be accepted.