**Consultation paper no. TECH#1@2019**



**CONSULTATION PAPER ON LIGHT LICENSING OF THE 2.4GHz and 5GHz BAND IN ZIMBABWE**

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| CONSULTATION COMMENCEMENT DATE | 14 January 2019 |
| CONSULTATION CLOSING DATE | 22 February 2019 |

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# Introduction

The Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) intends to make the frequency bands 2400- 2483 MHz and 5 725-5 875 MHz available for the implementation of rural Broadband Fixed Wireless Access (BFWA) systems in farming and rural areas of Zimbabwe.

Additionally, POTRAZ intends to make the frequency band 5 725-5 875 MHz available for Short Range Devices (SRDs) and low-power BFWA systems, on a licence exempt basis in both urban and rural areas of Zimbabwe, as is the case for frequency bands 2400 – 2483MHz, 5.15 – 5.35 GHz and 5.470 –5.725 GHz.

The objectives of the proposed regulatory change are as follows:

1. to enhance broadband connectivity in rural Zimbabwe, particularly in schools, hospitals, police stations and rural amenity intuitions.
2. to extend the reach of broadband services in both urban and rural areas of Zimbabwe.
3. to enhance ICT-centric innovation in Zimbabwe.
4. to connect the unconnected.

An underlying principle of the proposed licensing regime is that primary services to which the bands are allocated in the Zimbabwe National Frequency Allocation Plan (ZNFAP) would and shall always be protected.

Establishment, ownership and operation of rural BFWA systems would be authorised through Public Network Operator Licences OR through light-licences issued by POTRAZ.

Individual citizens, corporates, private and public institutions would be eligible for licensing under the light-licence regime.

# Broadband Fixed Wireless Systems

* 1. BFWA systems are broadband radio communications systems, which can be deployed either inside or outside buildings, usually covering a geographically defined area. Typical BFWA systems include public and private wireless solutions providing connectivity in homes, schools, hospitals, train stations, airports and shopping malls. BFWA systems enhance the reach of existing telecommunications networks and enable new applications, particularly in rural areas.
  2. **Features of BFWA**

BFWA networks terminal stations may be fixed, nomadic and /or mobile. Report ITU –R F.2086-1 provides technical and operational characteristics of BFWA systems.

BFWA systems enable a variety of architectures, including Point-to-Multipoint (P-MP), Point-to-Point (P-P), Mesh (Multipoint-to-Multipoint, directional or omni-directional) and any point-to-Multipoint (AP-MP, i.e. hybrid of Mesh and P-MP).

**Annex 1** provides the general technical and regulatory conditions applicable to the 2.4GHz and 5 GHz bands, including those for the **5.8GHz band**. Equipment compliant with specifications and regulatory conditions stipulated in Annex 1 is authorised to operate on a licence-exempt basis, provided such equipment is Type Approved by POTRAZ.

1. **Licensing Scheme for High-Power rural BFWA Systems (Light-Licence)**
   1. A Light-licence is an authorisation upon which users of a frequency band, in this case the 2.4 and 5.8GHz ISM bands, operate under simplified regulatory conditions compared to those applicable to conventional licences. Light-licensing essentially entails the registrations of stations under significantly reduced fees coupled with simplified operating conditions.
   2. For the effective coverage of rural areas by BFWA systems, levels of power significantly higher than those stipulated in Annex 1 may be needed. Fortunately, due to the absence or low levels of deployment of both ISM equipment and systems of other services to which the 2.4 and 5.8GHz bands are allocated, the probability of harmful interference emanating from high-power BFWA systems operating in these bands is significantly low and manageable. Accordingly, high-power BFWA systems operating in rural and underserved areas may not have as significant an impact on other users of the bands as in urban areas. Results of inter-service sharing studies conducted by the ITU indicate that given certain constraints, sharing between BFWA systems and other radio communications services using the same band is feasible. POTRAZ therefore proposes to raise the maximum power limit for rural BFWA systems above those specified in Annex 1, provided that such rural BFWA systems shall operate under a licence issued by the Authority.

# Conditions for BFWA systems deployment

* 1. POTRAZ shall not allow any device to operate at power levels greater than those specified in Annex 1 without prior approval. Both the owner of the base station and that of the Customer Premises Equipment (CPE) shall be subject to licensing.

POTRAZ proposes the following conditions for deployment of rural BFWA systems:

1. *Licensing:* All rural BFWA systems shall operate under respective licences issued by POTRAZ.
2. *Interference Protection:* All rural BFWA systems shall be operated on a non-protection and non-interference basis
3. *Application:* Applicants shall submit a completed form providing key information on the deployment type; transmitter location; Antenna Height, Transmit Frequency; channel bandwidth; transmit power and user contact details.
4. *Applicable Fees:* A fee prescribed by the Authority from time to time shall apply. Currently, POTRAZ is proposing a fee of $50.00 per link.
5. *EMC & EMF standards*: All base stations and CPEs shall comply with emission standards, as stipulated by the Authority.
6. *Publication*: POTRAZ shall publish the details of all licensees in a publicly accessible database
7. *Authorised installers:* Only licensed radio dealers accredited by POTRAZ and/or Public Network Operators shall be authorised to do rigging and installations for rural BFWA systems.
   1. In keeping with its values of transparency, responsiveness and predictability, POTRAZ wishes to consult on changes it is proposing to introduce to the current Licensing Framework, in order to improve broadband connectivity in underserved areas of Zimbabwe.

# Consultation Questions:

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| --- |
| 1. Would you agree with the objectives POTRAZ intends to pursue through availing the 2.4GHz and 5.8GHz bands to high-power Broadband Fixed Wireless Access Systems. 2. Would you agree with the above characterisation of the 2.4GHz and 5.8GHz bands and the proposed deployment of rural BFWA systems in rural and underserved areas of Zimbabwe? 3. Would you agree with the proposed light-licensing framework in respect of the implementation of Broadband Fixed Wireless Access systems in rural and underserved areas of Zimbabwe? 4. Would you agree with the proposed implementation of low-power SRDs and BFWA systems in the 5.8GHz bands under technical and regulatory conditions specified in Annex 1? 5. Would you agree with the fee of $50.00 per link proposed by POTRAZ? 6. Would you be so kind as to provide your comments, responses, views and thoughts, in writing, to the Director General of POTRAZ, by the 22nd of February 2019? |

# Guidance to prospective responders:

* 1. The consultation begins on the 14th of January 2019 and closes on the 22nd of February 2019.
  2. Responses can be sent to [ruralbroadband@potraz.gov.zw](mailto:ruralbroadband@potraz.gov.zw) or by post to

The Director General

POTRAZ

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Mt. Pleasant Business Park

1008 Performance Close

P.O. Box MP843

Mt Pleasant

Harare

* 1. All responses and correspondence relating to this consultation should reference this Consultation number **TECH#1@2019**.
  2. POTRAZ reserves the right to publish the comments and responses received, showing the identity of the submitting party.
  3. POTRAZ is not obliged to respond or accept any comments it receives from any party.
  4. 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;

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

# 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.

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# ANNEX 1

# PROPOSED POWER LIMITS FOR THE 5.8GHz BAND

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Topology**  **Parameter** | **P-MP**  **(Point-to-Multipoint)** | **P-P**  **(Point-to-Point)** | **Mesh** | **AP-MP**  **(Any point-to-Multipoint)** |
| Frequency band | 5725 MHz to 5850 MHz | | | |
| Radio service Fixed | Fixed | | | |
| Application | Fixed Wireless Access | | | |
| Maximum mean e.i.r.p. | 36 dBm\*  (4W) | 36 dBm \*  (4W) | 33 dBm  (2W) | 33 dBm  (2W) |
| Maximum mean e.i.r.p. density | 23 dBm/MHz | 23 dBm/MHz | 20 dBm/MHz | 20 dBm/MHz |
| TPC range for each station | 12dB | 12dB | 12dB | 12dB |
| Dynamic Frequency Selection | mandatory | mandatory | mandatory | Mandatory |
| Duplex Type | TDD | TDD | TDD | TDD |

\*for rural BFWA systems, higher e.i.r.p. levels can be authorised, on a case-by-case basis, provided the increase is achieved through higher antenna gain.

# SUMMARY OF CHANGES TO ISM REGULATION

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| --- | --- | --- |
| **Frequency Band** | **Current Permissions** | **Proposed New Permission** |
| 2400 – 2483.5 MHz | 100mW max EIRP (20dBm)  100m radius P – MP  Both Indoor and Outdoor  No Pt – Pt. | \*36dBm with option for higher e.i.r.p through higher antenna gain, for rural BFWA systems. |
| 5150 – 5350 MHz | 200mW max EIRP  50m radius P – MP  Indoor use only  DFS and TPC Mandatory  No Pt – Pt. | None |
| 5470 – 5725 MHz | 1000mW max EIRP  300m radius P – MP  Both Indoor and Outdoor  DFS and TPC Mandatory  No Pt – Pt. | None |
| 5725 – 5850 MHz | Not Permitted | \*36dBm for urban  Both Indoor and Outdoor  DFS and TPC Mandatory  36dBm with option for higher e.i.r.p through higher antenna gain, for rural BFWA systems. |

\*for rural BFWA systems, higher e.i.r.p. levels can be authorised, on a case-by-case basis, provided the increase is achieved through higher antenna gain.