



**Consultation Paper**  
**on**  
**" Revision of**  
**Radio Frequency Spectrum Fee**  
**For Private Radio Networks "**

**March, 2017**  
**Licensing Division**  
**Pakistan Telecommunication Authority**

**Consultation paper No: Lic-01/2017**

**Comments/Feedback Submission**

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**The deadline for stakeholders' comments is**

**May 12, 2017**

**Table of Contents**

1. Introduction.....	4
1.1. Legislative Context of Spectrum Pricing	
1.2. Rationale and Purpose of this Consultation	
2. PTA's Proposal for Inflation Adjusted PRN Rates .....	6
2.1. Why Revision is Required?	
2.2. Introduction to Inflation Based Increase	
2.3. Existing Vs. Proposed Rates	
2.4. Phasing of Rates Implementation	
3. Country Case Studies .....	8
4. Conclusions.....	10
5. Feedback.....	10

## 1. Introduction

In this Consultation Paper, a revision in the fee of frequency spectrum assigned for Private Radio Networks (PRN) is being proposed in light of Government of Pakistan's Telecommunication Policy, 2015. This revision is specifically for the usage of radio frequency spectrum, which is not assigned through auctions, nor in the category of very congested spectrum and portion of the spectrum where the risk of interference is low.

The Private Radio Networks are categorized as:-

- Private Land Mobile Wireless Networks
- Point-to-point Fixed Links in UHF,VHF,HF
- AM and FM Broadcasting Radio Service
- Aeronautical and Maritime Service
- Earth Station and TV & Satellite Communication Services

The major portion of this spectrum is assigned to the entities (i.e. government and private) for establishing, maintaining or operating private land mobile wireless networks, to meet various communication requirements on land, marine coasts, aeronautical ground to air traffic control domains.

The radio frequency bands used by PRN mainly fall in VHF (most users) and UHF. Most assignments are either 12.5 KHz or 25 KHz bandwidth, as per requirement and the frequency spots are assigned on the basis of geographic sharing/ reuse.

The radio frequency spectrum rates for the Radio Based Services/ Private Radio Networks were implemented back in 2000 and since then, the same rates have been in vogue without any revision.

Now, the Government of Pakistan, in its Telecommunication Policy 2015 has directed that the spectrum be assigned to the licensee, in equation with the value of that spectrum and fee be established/ revised that is economically justified.

In the light of the above, a revision in fee is being proposed, such that the radio frequency spectrum rates for PRN in vogue are being adjusted by the factor of inflation, i.e. how much the charges in 2000 cost today, or otherwise, a sustained increase in the aggregate price level of the services in our economy throughout the past one and half decade.

The proposed revisions are in line with International trend and at par with the similar set of examples worldwide.

## 1.1. Legislative Context

### i. Pakistan Telecommunication (Re-organization) Act, 1996

- The section 5(2)(a) of Pakistan Telecommunication (Re-organization) Act, 1996 ( the Act) empowers the Authority to review the fee structure associated with any telecommunication service. It states one of the powers of Authority as: %Grant and renew licenses for any telecommunication system and any telecommunication service on payment of such fees as it may, from time to time specify+
- The section 5(2)(c) of the Act empowers the Authority to: %Receive applications for the use of radio frequency spectrum and subject, where applicable, to grant of licenses under clause (a), refer such applications to the Board for assignment of spectrum within a period of thirty days+

### ii. Telecom Policy 2015

For the management of the radio frequency spectrum, the Clause 8 of Telecom Policy states that: "*The goal of GoP in relation to the management of spectrum is to have a sound process for, allocation and assignment of spectrum to maximize social and economic benefits that can be derived from the use of this scarce resource*".

- 8.1.1. states that: *Obtaining a balance between competing needs and finitely available spectrum will be a key to maximizing economic growth potential of the ICT and digital media sectors.*
- 8.1.2. states that: *Recognizing that spectrum is a valuable public resource belonging to the State and must be used in public interest, the overriding spectrum policy goals are to:*
  - *Use spectrum in an efficient and flexible manner;*
  - *Maximize social and economic benefits;*
  - *Promote stability and transparency;*
  - *Support the emergence of future telecommunications services.*
- 8.7.1 states: *Where spectrum is licensed, a fee will be charged based on the most appropriate of the following methods:*
  - a) **Auctions** *will be the preferred method of assigning access rights to blocks of spectrum for dedicated use. To the extent possible, these will be technology neutral and include coverage in minimum time frame and quality of service obligations in the license to maximize public benefit. Where a band is to be shared between users and / or applications, blocks of spectrum will be created that reflect these joint uses.*
  - b) **Administrative Incentive Pricing (AIP)** *reflects the opportunity cost of spectrum to encourage efficient use of spectrum and will be introduced*

*for congested spectrum that has not been subject to an auction, for example microwave spectrum. AIP improves the efficient use of spectrum by setting the price for spectrum at a level that encourages the user to consider alternatives and encourages spectrum use to move to the highest value application.*

- c) **Administrative Cost Recovery (ACR)** will be adopted where auctions and AIP are inappropriate, for example in aeronautical, maritime and amateur radio bands. The fee will be set to reflect the costs incurred in administering spectrum in the band from which frequency is to be assigned. This approach will be applied to spectrum that is not congested and where the risk of interference is low.
  
- 8.7.5 states: *The PTA will propose to the Federal Government(MoIT), the method for assigning and pricing the Frequency Spectrum after consultation with stakeholders.*

Based on above references from the Telecom Act and clauses of the latest Telecom Policy, 2015, PTA has been empowered to propose the revision in the rates associated with use of radio spectrum, in order to promote the efficient use of this scarce resource. In line with Telecom Policy, 2015, the Administrative Cost Recovery(ACR) approach is applicable for the spectrum used in private radio networks.

## 1.2. Rationale and Purpose of this Consultation

The purpose of this consultation is to obtain feedback and comments from the relevant stakeholders on the proposed mechanism of spectrum rates enhancement.

At the end of this Consultation Paper, PTA has identified specific questions and issues particularly relevant to its final decision. It is encouraged that comments on these questions in particular may be provided and PTA welcomes comments on any other related issues that stakeholders believe are relevant.

It should be noted that PTA has provided a preliminary view on revision of the rates by revising them on the basis of inflation from 2001 to date. This view is a proposition that invites views from parties on whether they agree or disagree, and why; and it is not to be taken as a final view of the Authority.

## 2. PTA's Proposal for Inflation Adjusted PRN Rates

### 2.1. Why Revision in Rates is Required

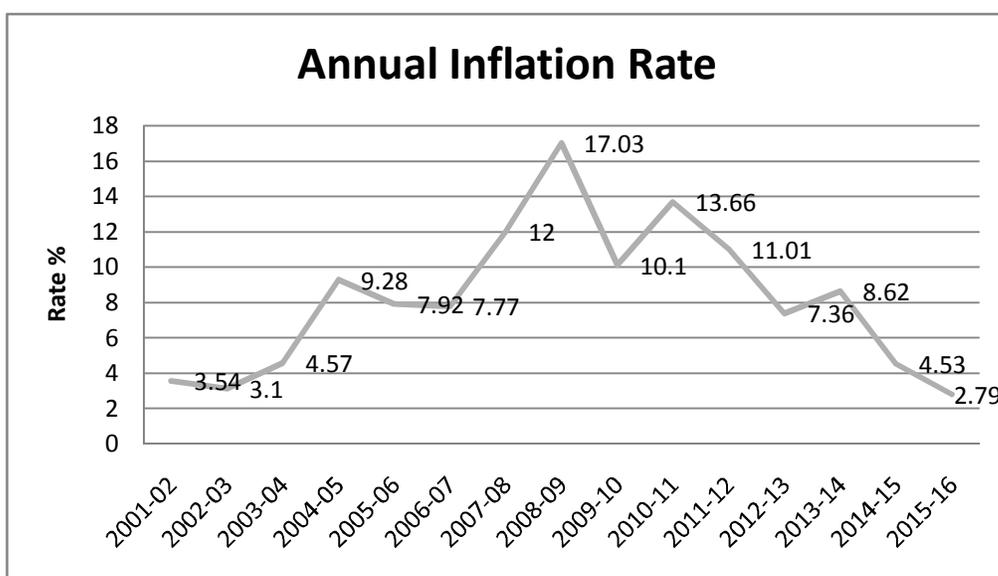
**Annual Spectrum Administration Expenses:** Section 42(2) of the Act and clause 8.7.3 of the Telecom Policy, 2015 mention the proportional bond of the Annual Spectrum Administration Expenses with the annual License fee from those licensees having a spectrum assignment.

Over the period of last fifteen years i.e. from 2001 onwards, the annual spectrum administration expenses have increased a little more than twice, with a trend of increasing approximately half a fold, averaged over a span of every five (05) years, however the corresponding rate/ fee levied on the licenses has not been revised ever, since last 15 years.

So, taking into account the administration and management related expenses of the spectrum management, and the directions from Telecom Policy 2015, the Authority observes a dire need for the rational enhancements in the rates of the radio frequency spectrum to bring them at par with its management expenses.

### 2.2. Introduction to Inflation Adjusted PRN Rates

The inflation rate of Pakistan is averaged at 8.22% from FY2001~02 to 2015~16 in Pakistan. The overall inflation trend can be seen in a chart below.



Note: Source Pakistan Economic Survey 2015-16 Page No. 82 of Statistical Appendix, <sup>1</sup>

<sup>1</sup> Source: \* Pakistan Economic Survey 2015-16- Page No. 82 of Statistical Appendix, also given in Annex-B of this document.

As previously mentioned that the rates of the spectrum has not been revised since fifteen (15) years and the administrative cost of the spectrum has increased a considerable amount. Hence, the Authority is of the view that the rates shall be adjusted with respect to the inflation, so as to bring them at par with all other services of the economy and to adjust the management and administration cost of this Spectrum with its usage fee/ charges.

To apply the above, standard procedure for application of the inflation rate has been adopted, i.e. the Authority has taken the cumulative inflation rates for past 15 years, from Pakistan Economic Survey 2015-16 (Page No. 82 of Statistical Appendix) i.e. from 2001 to 2016. The percentage increase in the rates of network elements, due to inflation, from 2001 onwards has been calculated. This results in total increase of almost 123.28% in the basic rates.

### 2.3. Existing Rates Vs. Proposed Rates

The existing rates are being adjusted by the factor of inflation rate by simply finding the percentage increase in the rates of 2001 to 2016. The calculation is depicted as follows:

$$\text{Inflation Adj. PRN Rates} = [\text{Avg. Inflation (FY01-16)} \times \text{Rate of 2001}] + [\text{Rate 2001}]$$

For Example the Rate of a Base Station was Rs. 2,500/ and according to the proposed revision:-

$$\begin{aligned} \text{Rev PRN Rate} &= [1.2328 \times 2500] + [2500] \\ &= 5,600/- \text{ (Rounded to nearest multiple of 100)} \end{aligned}$$

This adjustment has given a rise of almost 120% in the rates( average annual increase of 8.22%). i.e. a base station that was charged Rs.2,500 shall now be charged Rs. 5,600/-<sup>2</sup>.

It is further proposed that in metropolitan areas i.e. all the provincial capitals(only) and federal capital, 15% more than the basic proposed rates shall be charged. i.e. Rs. 6,325 shall be charged for a Base Station.

The detailed existing PRN spectrum rates that were implemented in 2001 and proposed rates are attached in Annex-A.

<sup>2</sup> If rates were increased every year based on that year's inflation, the amount would have come to Rs. 8100/- (Rs. 8,092.28 rounded to nearest 100) and the total increase in prices in percentage terms would have been 223.7%.

## 2.4. Phasing of Rates Implementation

The new rates (as approved), shall be implemented with effect from the date of approval from Federal Government. The revision shall be applicable to all existing, new and renewal cases.

## 3. Country Case Studies

Some of the International regulators, specifically in the SAMENA region, have defined a different set of parameters for radio based charging, depending upon their GDP, CPI, Population density, Frequency demand and nature of the networks being deployed in the region.

Some of the countries like India have defined the different Distance-Based slabs for the allocation, establishment and charging of networks. Few countries like UAE and Pakistan have defined the Power-Based slabs, and Australia has defined it for economic factors like consumer Price Index (CPI) and Population density based. So therefore, there is no rule of thumb for defining the rates of VHF/ UHF spectrum. However, all the countries have defined it based on their economic, geographic conditions and business models of these networks.

In addition, a few countries have declared the allocation in the metropolitan areas to be around 15% higher than the basic rates. This is basically due to the proportionally high number of allocations in the cities of business centers, which results in a higher risk of interference, leading to very careful reuse factor.

A comparison was conducted between the charges and the charging mechanism of few countries, in order to compare the rates and mechanism of Pakistan with them. For that matter, a hypothetical network consisting of One (01) Base Station, One (01) Mobile station and Five (05) Walkie Talkies were considered and the rates of each country were applied and converted in Pakistani Rupees for comparison purposes.

	Country	Annual License Fee (PKR <sup>3</sup> ) Network = 1 Base, 1 Mobile & 5 W/talkies	Rate Implementation Date	Comments
1	Australia	Annual Fee = <b>Rs. 190,646/-</b>	Rates revised in <b>April, 2016</b> through ACMA Schedule April, 2016	CPI & Location incorporated in annual charging formula to include Y-o-Y inflation and population factor in formula.
2	UAE	Annual Fee = <b>Rs. 171,240/-</b>	Rates revised in <b>January 2016</b> through <b>Regulations Jan 2016</b>	Different rates are defined for: 1) UAE wide, 2) Emirates Wide & 3) Within Emirates

<sup>3</sup> Conversion Rates of December 2016 apply.

3	<b>Canada</b>	Annual Fee = <b>Rs. 36,971/-</b>	Revised in April 2014 through <b>Radio Regulation</b>	Metropolitan areas are charged more than thrice the basic rates.
4	<b>India</b>	Annual Fee = <b>Rs. 23,230/-</b>	Rates revised in <b>March 2012</b> through Govt. Order March 2012	Different rates are defined for: 1) 10% more rates for Municipals & 2) 15% more for States of 5 cities.
5	<b>Malaysia</b>	Annual Fee = <b>Rs. 14,274 /-</b>	Charging is based on <b>Regulations of 2000</b>	
6	<b>Pakistan</b>	<b>Annual Fee = Rs. 12,500/-</b>	<b>Charging is based on PTA Approved rates of January 2001</b>	
	<b>Proposed PTA Rates</b>	Annual Fee= <b>Rs. 28,000/-</b>		15% more rates are proposed for Provincial capital cities only.

## 4. Conclusion

In light of the proposed Administrative Cost Recovery (ACR) based charging scheme, it would be expected that the inflation adjustment would result in an increase of around 120% . That is, rates increase by a little more than twice. This increase in rates after a span of 15 years is more reasonable as the revision is directly derived from inflation in the country or otherwise, the real worth of the money today.

In more heavily congested areas i.e. all provincial and federal capitals, the use of PRN allocations would see the increase in costs by 153%. or nearly two and a half times increase in the annual license fees. This type of arrangement/ charging mechanism for metro areas is practiced in many countries of the world, probably for the reason that wider range of the VHF spots are being allocated in these densely populated business capitals, with a very careful reuse factor.

In relation to overall raise in costs, proposed levels of ACR are very modest and would be expected to have a negligible impact on final demand for services. However, would optimize the use of equipment in each and every VHF/UHF network, resulting into a reduction in the overall interference to the closer networks, as each network element/ equipment in VHF network is a source of interference to others.

## 5. Comments/ Feedback

All the stakeholders are hereby requested to provide their views, feedback, input, suggestions and concerns, if any, on the following items:

1. The proposed inflation adjusted rates of PRN.
2. The charging of the metropolitan areas

Service Wise Rates/ Charges for Use of Frequency Spectrum

<b>I. Aeronautical Services</b>			
<b>S No</b>	<b>Network Element <sup>1</sup></b>	<b>Present Rate*/A</b>	<b>Proposed Rate/A</b>
1	Aircrafts - Mobile station	5,000	11,200
2	Aeronautical Ground for air traffic control	5,000	11,200
3	Maritime Aircraft	5,000	11,200

<b>II. Maritime Services</b>			
<b>S No</b>	<b>Network Element <sup>1</sup></b>	<b>Present Rate/A</b>	<b>Proposed Rate/A</b>
1	Ship station	5,000	11,200
2	Coastal Station for ships (HF/VHF) including public correspondence	4,000	9,000
3	Fish trawlers not more than 100 Watt will be charged 10 % more of approved rates of <b>HF wireless stations (III)</b>		
4	Commercial Sips not more than 100 Watts will be charged 30% more of the approved rates of <b>HF wireless stations (III)</b>		
5	Ground control stations fee for fishing & commercial ships will be 30 % of the approved <b>HF wireless station (III)</b>		

<b>IV. Inmarsat Fee</b>			
<b>S No</b>	<b>Network Element <sup>1</sup></b>	<b>Present Rate/A</b>	<b>Proposed Rate/A</b>
1	Inmarsat Terminal	25,000	56,000

<b>III. HF Wireless Station</b>			
<b>S No</b>	<b>Network Range <sup>1</sup></b>	<b>Present Rate/A</b>	<b>Proposed Rate/A</b>
1	Up to 20 Watt	5,000	11,200
2	Above 20 Watt	8,000	18,000
3	Above 50 Watt	12,000	27,000
4	Above 100 Watt	15,000	33,500

<b>VI. Trunking Services</b>			
<b>S No</b>	<b>Network Element</b>	<b>Present Rate/A</b>	<b>Proposed Rate/A</b>
1	Per MHz	120,000 per MHz/ A	268,000 per MHz/A

<sup>1</sup> Charged Per Station Per Annum (A)

IV. Radio Broadcasting				
S #	Network Element		Present Rate/A	Proposed Rate/A
1	MF/HF (0.5 - 30 MHz)	upto 10 KW	2,000	4,500
		> 10KW	4,000	9,000
		> 50 KW	6,000	13,500
		> 100 KW	8,000	18,000
		> 200 KW	10,000	22,500
		> 500 KW	15,000	33,500
2	FM/VHF/UHF	upto 10 Watt	1,000	2,500
		> 10 Watt	3,000	6,700
		> 100 W	4,000	9,000
		> 1 KW	6,000	13500
3	TV Broadcasting area of coverage for A class signal	Upto 10KW	10,000	22,500
		> 10 KW	20,000	44,500
		> 20 KW	30,000	67,000
		Video Link per channel/ site /day	400	1,000

V. Private Radio Network (VHF/UHF) for BW= 12.5KHz				
S No	Network Element <sup>2</sup>		Present Rate/A	Proposed Rate/A
1	Base station	Upto 10 Watt	2,500	5,500
		> 10 Watt	5,000	11,000
		> 25 Watt	7,500	17,000
		> 50 watt	10,000	22,500
2	Mobile Station	< 5 Watt	1,250	3,000
		> 5 Watt	2,500	5,500
		> 25 Watt	3,750	8,500
3	Walkie Talkie	Upto 10 Watt	1,000	2,200

VI. Fixed point to point (VHF/ UHF) for BW=12.5KHz			
S No	Network Element <sup>2</sup>	Present Rate/A	Proposed Rate/A
1.	Upto 10 watt	600	1,500
2.	Above 10 Watt	1000	2,200
3.	Above 25 Watt	2000	4,500
4.	Above 50 Watt	3000	6,700

VI. Amateur Services			
S No	Network Element	Present Rate/A	Proposed Rate
1	Base Station	50	200

\*<sup>2</sup> Charged Per Station per Spot per Annum(A) & For 25 KHz Band Width the charges will be 100% more than the approved rates for 12.5 KHz bandwidth