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## GENERAL NOTICE

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### NOTICE 827 OF 2010

#### **REASONS DOCUMENT: RADIO FREQUENCY SPECTRUM FEES REGULATIONS**

#### **1 INTRODUCTION**

On 16 March 2009, the Authority published a notice<sup>1</sup> calling for comments by 30 April 2009 on the draft Radio Frequency Spectrum Licence Fees Regulations (Spectrum Fees Regulations). The draft Spectrum Fees Regulations were accompanied by a Discussion Document, outlining the reasoning behind the proposed clauses.

The introduction to the Discussion Document on Spectrum Fees states that the Authority intended to revise the annual Radio Frequency Spectrum Licence Fees currently specified under the E1 Licence Fees Chapter of the Radio Regulations (GNR 2862 of 1979) (E1 Spectrum Licence Fees) published in terms of the Telecommunications Act, 1996 (Act No. 103 of 1996). The review, however, does not cover the E2 - Examination and Certificate Fees and the E3 - Application Fees by Type of Radio Communication Services.

The Authority notes that the current E1 Spectrum Licence Fees have a number of deficiencies, including the fact that they are outdated, manifestly unfair with wide differences between the fees paid by different users for comparative services, encourage spectrum hoarding and do not encourage efficient use of spectrum, among other things. The draft Spectrum Fee Regulations therefore proposes incentive-based prices that are designed to reflect the economic value of spectrum. The rationale for the proposed fee structure, therefore, is essentially to incentivise the efficient use of spectrum, or conversely, to prevent or minimise inefficiency. Implicit in the fee structure, is that, at a minimum, the administrative costs of managing spectrum use are covered.

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<sup>1</sup> Government Gazette No 32029 (Notice No. 304 of 2009)

By the closing date for comments on the draft regulations the Authority had received 32 written submissions from the following:

MTN

Cell-C

Vodacom

Neotel

Sentech

Telkom

Transtel

Smile Communications

MWeb

Eskom

National Association of Broadcasters (NAB)

South African Police Services (SAPS)

Wireless Access Providers Association of South Africa

On Digital Media

Infraco

Internet Solutions

South African Tetra Association (SATA)

Professional Mobile Radio Association (PMRA)

Kenwood

Fleetcall

Internet Service Providers Association

Telemedia

Orbicom

Wireless Business Solutions (WBS)

Transnet

Sasol

Department of Defence

Webber Wentzel Bowens

Radio Data Communications

Altech Netstar

Kitso Tech Coopers Radio

Telemedia

Only 21 of the 32 listed entities requested an opportunity to present orally at the public hearings and only 16 finally made presentations at the public hearings held from 02 to 04 September 2009. The hearings were held before a Committee of Council, which comprised the following members:

Clr Fungai Sibanda – Chairperson of Committee  
Clr Thabo Makhakhe – Co-Chairperson  
Clr Marcia Socikwa – Co-Chairperson  
Mr Mandla Mchunu – Engineering and Technology (Project Leader)  
Mr Gert Visser – Engineering and Technology  
Ms Mashudu Netshiongolwe – Markets and Competition  
Mr Pieter Grootes – Markets and Competition  
Mr Bethuel Makola – Legal Services  
Mr Roger Blackshaw – Datacon Consulting  
Mr Simon Biaou – Datacon Consulting

## **2 LEGISLATIVE FRAMEWORK**

Section 2(e) of the Electronic Communications Act (Act 36 of 2005) (“the Act”) provides that the Authority must ensure that there is efficient use of the radio frequency spectrum.

Section 30(1) of the Act confers powers to the Authority to control, plan, administer and manage the use and licensing of the radio frequency spectrum except in instances provided for in section 34.

Section 4(1)(c)(iv) of the Act provides that the Authority may make regulations with regard to the payment to the Authority of charges and fees in respect of the granting of licences in terms of the Act or the related legislation.

### **3 POLICY FRAMEWORK**

Section 3(1) of the Act allows the Minister to make policies on matters of national policy applicable to the ICT sector, consistent with the objects of the Act and of related legislation in relation to radio frequency spectrum, among others. Section 3(4) further enjoins the Authority, in exercising its powers and performing its duties in terms of the Act and the related legislation, to consider policies made by the Minister.

Following public hearings on the draft regulations, Cabinet approved the Radio Frequency Spectrum Policy (Spectrum Policy) in April 2010<sup>2</sup>. The Spectrum Policy aims to, among other things, establish principles for spectrum management; facilitate scientific research; establish guidelines for spectrum planning; set principles for spectrum usage and; most importantly, for these regulations, establish principles for spectrum fees. The Spectrum Policy states that the fees to be paid for the usage of the radio frequency spectrum should be based on factors that take into account the inherent properties of the radio frequency spectrum, such as frequency band, congestion, coverage and geographical area of operation, among others. The Radio Frequency Spectrum Fee Regulations take these principles into account

### **4 COMMENTS ON POLICY ISSUES**

A number of presenters raised policy issues underpinning the draft regulations. The following are some of the key policy issues raised:

- (a) Broadcasters have historically not paid for spectrum. However, most presenters felt that the exclusion of broadcasters from the payment of spectrum fees goes against the spirit of technology neutrality and convergence espoused in the Act. It was felt that the Authority had not provided enough rationale for the exclusion of broadcasters from the payment of spectrum fees.

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<sup>2</sup> Government Gazette No.33116, (Notice No. 306 of 16 April 2010)

Broadcasting systems comprise amongst others distribution and contribution links. Getting the signal from the studio to a transmitter is 'contribution', and getting the signal out of a transmitter to the general public is 'distribution'. At present, broadcasting service licensees are paying for certain contribution links (e.g. satellite links, microwave and studio-to-transmitter links) and not for distribution links (e.g. audio 88-108MHz, VHF/UHF TV, etc). The issues raised in the written and oral submissions suggest that broadcasters should pay for distribution links as well. A decision, however, could not be made on the matter without affording broadcasters the opportunity to be heard.

The Authority therefore has decided to embark on a public consultation process in order to give other operators and the general public as well as broadcasters an opportunity to comment on whether broadcasters should pay for spectrum and if so, how.

- (b) It is not clear to some presenters what the purpose of levying radio frequency spectrum licence fees by the Authority is. It is also not clear whether the fees charged by the Authority for spectrum will be recovery of costs or whether the intention is to raise funds for the treasury, that is, whether the fees are a form of tax on operators.

The discussion document accompanying the draft regulations clearly states that the spectrum charge should be calculated so as to, at a minimum, cover the costs of spectrum regulation. The proposed spectrum pricing framework therefore does not seek to maximise revenue for the state. The intention of some of the written and oral submissions is to influence the Authority to make a statement on the revenue target that the Authority intends raising. The Authority is not in a position to be tied to a specific revenue target, save to say that at a minimum the fee structure intends to cover the cost of regulating spectrum use, while at the same time ensuring efficient use of spectrum, in line with the underlying principles of Administered Incentive Pricing (AIP) adopted herein. It is therefore common cause that the fees collected may overshoot the cost of regulation. The over-

recovery of fees may also result from an increase in applications for spectrum use.

- (c) Some presenters also recommended that an economic impact analysis of the proposed fee structure should be undertaken, so as to give operators and the Authority an indication of the impact of the proposed licence fees. During public hearings the Authority gave operators an opportunity to submit further information by 18 September 2009, on the impact of the proposed fees on their individual businesses and also to demonstrate to the Authority their interpretation and application of the formulae.

The Authority received the additional information as requested. The Authority compared the information received from operators on the use of the fee calculation formulae as contained in the draft regulations with its own interpretation and application of the formulae. The Authority noted instances where there were variances between the operators' and the Authority's calculations, based on the parameters used. The Authority noted further that of the parameters contained in the regulations, the use of 'Area Sterilised' and 'HopMini' provided the most challenge to some operators. The Authority is confident, however, that by the time the regulations become operational, there will probably be convergence on how to use the parameters contained in the regulations to calculate spectrum licence fees..

It was further noted that on average, the proposed fee structure impacted heavily on bulk users. In order to minimise this impact, the Authority decided to increase the discount for the usage of spectrum in low density areas in line with policy sentiment that operators be encouraged to invest in the rural areas.

The Authority is satisfied that the proposed formulae will deal with the numerous challenges of spectrum pricing and usage. Over time, the remaining challenges of interpretation should be ironed out between the Authority and operators.

- (d) It was also recommended that the 'use it' or 'lose it' principle should be incorporated into the draft regulations. The Authority is of the view that important as it is, this matter should be addressed in terms of section 33 (3) of the Act, which deals with coordination and disputes among radio frequency spectrum licensees.

## **5 COMMENTS ON APPROPRIATE MODEL**

Most submissions supported the principle of AIP as the basis for pricing the spectrum. The main critique of AIP is whether it would actually modify the behaviour of spectrum users. The Authority concurs with operators that AIP is the appropriate method of charging for spectrum use. Furthermore, the Authority believes that the essence of AIP is that it should modify the behaviour of spectrum users by incentivising efficient use of spectrum, preventing stockpiling of spectrum or the handing back of spectrum that is not needed and the movement by operators to less congested spectrum.

Telkom proposed that the Authority should use a model that reflects the value of the so called sweet spot (i.e. the 700 MHz –3.5 GHz bands which include cellular bands). This was considered, but was ruled out as the proposed approach would be subjective, not technology neutral and would inappropriately penalise the cellular operators for being allocated/ assigned a particular band.

Sentech requested the Authority to restrict the formula to a smaller number of factors e.g. SHR, BW, ASTER, CG. The rationale for the proposal is that Finland and Denmark use an AIP formula with fewer factors and that the fewer the factors the simpler the formula. The Authority's view is that this argument does not hold because it is not the number of factors that causes complexity, but the complexity of specific factors. Furthermore, the Authority believes that the public consultation process allowed operators an opportunity to interpret the formula and most presenters did not regard the formula as complex. The Authority, has therefore not tempered with the number of factors in the formula.

Some submissions discussed the issue of Spectrum Auctions as a means of assignment. There was, however, a split between those favouring auctions and those not favouring auctions in principle in the South African context.

As stated in the opening address to the public hearings, the regulations form part of a broader framework on frequency spectrum including spectrum coordination and management, the treatment of spectrum where demand is greater than supply and the national frequency band plan, among others. Whilst the focus of these draft regulations is on spectrum fees, the spectrum auctioning mechanism is contained in the draft regulations for awarding radio frequency spectrum for competing applications in terms of section 31(3) of the ECA.

## **6 COMMENTS ON FORMULA PARAMETERS AND FACTORS**

### **6.1 Minimum Price**

The submissions that addressed the Minimum Price factor concerned themselves with the rationale guiding the minimum price and the perception that the minimum price is too high.

The proposed Minimum Price is a very important component of the proposal as it alleviates the administrative burden on the Authority. The minimum price is intended to cover the Authority's administrative costs whenever the formula-derived fee is not enough for cost recovery.

### **6.2 Bandwidth Factor**

Most submissions supported the linear approach in general. Neotel however recommended a discount for the use of large bandwidths.

The Authority's view is that discounting for large bandwidths does not encourage higher consumption but can defeat the objective of encouraging efficiency. A volume discount for volume of bandwidth used will make the formula more complex. In any case the frequency factor (FREQ) already caters for the increased availability of bandwidth at higher frequencies.



### **6.3 Frequency Factor**

There were no fundamental objections to the principles of the frequency factor as given. Telkom, however, proposed an alternative frequency factor based on the commercial value of the so called sweet spot (700 MHz-3.5GHz). As already indicated in section 4 above, this approach is subjective, penalises the efficiency of cellular operators and is not technology neutral.

### **6.4 Congestion Factor**

The Congestion factor attracted considerable comment concerning how it would be implemented and the potential problems that could result. Concerns were raised regarding the challenges of measuring congestion. There were concerns that the waiting list could be manipulated by applicants who have no interest in controlling the frequency.

In the absence of testing for congestion, the Authority believes that a waiting list could be an appropriate proxy to determine whether a particular frequency is congested or not.

### **6.5 Geographic factor**

The comments on the GEO factor include the proposal to reduce the rural GEO factor that, if incorporated, will give a greater rural incentive and reduce the price for bulk users. Further, there is a need for clarity on the definition of the high density areas. ISPA recommends that the Authority should use the Universal Service and Access Agency (USASA) definitions. MTN recommended the deletion of medium density from the GEO factor. ISPA posits that poor urban areas will be negatively impacted by the definition of the GEO factor. There was also a proposal for a stronger incentive for rollout in rural areas, by lowering the GEO factor to 0.1 for rural areas.

Having taken into account the comments raised, the Authority has decided to redefine the GEO factor by removing the medium density because its usefulness

does not compensate for the complications that it may impose. The Authority has also redefined High Density as the entire Gauteng province and the municipal areas of Cape Town and Durban and low density as the rest of South Africa. The Authority also believes that a stronger incentive for rural roll-out, in line with the Department of Communications' Radio Frequency Spectrum Policy, is essential, hence an increase in the discount from 0.5 to 0.1.

### **6.6 Sharing factor**

Comments on sharing mainly touched on the desirability of increasing the discount for sharing. There were views that the sharing factor should encourage up to 5 users or even more.

The Authority believes that the sharing factor allows two or more licensees to use spectrum simultaneously in the same area. The concept of primary and secondary users does not affect the application of the formula.

### **6.7 Area Sterilized**

The main industry concern was on how the ASTER factor will be applied. Other submissions recommended that the maximum area should be the whole of South Africa. Neotel states that it is not clear to some operators how the point-to-area formula is supposed to be applied.

The area sterilized is the area denied to others as a consequence of the assignment, and not the area the user uses or intends to use. It is also clear that a national assignment will be charged at the maximum factor of 600. If a user has several assignments in different areas at sub-national level, then the ASTER factor will be assessed on the basis of the individual areas sterilized. The ASTER factor gives an incentive to take a national assignment (to which national objectives can be added). The ASTER in Point to Area (PtA) formula applies to overall covered area as opposed to on a station by station basis. As a result there should be no change to the ASTER factor because it incentivizes efficient assignments and does not penalise service provision to rural areas.

## **6.8 Minimum Hop Length Factor**

There were no fundamental comments on the HopMini factor. Telkom proposed that the HopMini should apply not only as a penalty for inefficient use but also as an incentive to efficient users.

The HopMini applies only when the user requests a point-to-point link for a distance for which higher frequencies could have been used. When the user is extra efficient (use of a given band for even longer links than the baseline), no additional incentive is provided because no operator would undermine its business by deploying longer links than necessary. Moreover, efficient users get a natural incentive by using less bandwidth or higher frequencies.

## **6.9 Unidirectional factor**

Submissions that commented on this issue requested a UniBi factor of 0.5 for specific cases. Vodacom recommended that where 2 licences are issued for a pair of co-frequency cross-polar links on same hop, both links should have a UNIBI of 1.

The principle of Unibi is that the value is 0.5 when the frequency applied is not paired.

# **7 ALTERNATIVE FORMULAS AND GENERAL COMMENTS**

## **7.1 Frequency Reuse Factor**

Some submissions have recommended a frequency reuse factor. The suggestion is that a Frequency Re-use factor should be applied primarily to the point-to-point formula so that a discount is given for the re-use of a frequency. Vodacom proposes a 4 scaled Frequency Reuse factor with a value of 0.1 for a reuse of more than 50 times. It is not clear whether these submissions mixed up the existing Bulk User arrangement with the new system.

This is inconsistent with the general purpose of the new approach. The existing factors in the point-to-point formula already incentivise efficiency as the assignment holder pays only for what he is assigned for a particular path. There is no disincentive for an assignment holder to have numerous PRP assignments in the same frequency and the assignment holder will be able to enjoy the equipment economies of scale. A frequency re-use factor gives an unfair advantage to large companies over small ones, assuming equal efficiency for both because FREUSE is based on the number of links and wrongly assumes that having more links implies efficient usage. The FREUSE factor does not provide any further incentives to efficiency beyond those already existent in the model.

## **7.2 Broadband factor**

A broadband incentive factor was recommended. The Authority believes that a broadband incentive is justifiable in rural areas but is already reflected in the GEO factor. By reducing the GEO factor, the Authority has increased incentive for rollout of services, including broadband, in rural areas.

## **7.3 Guard bands factor**

Sentech, Neotel, MTN and MWeb recommended that Guard bands should be excluded from the bandwidth for pricing purposes.

Guard bands, are required to protect normal operation within used bands, hence guard bands are valuable for licensees and should be paid for.

## **7.4 Equipment efficiency**

MTN and other operators recommended that a factor should be added to give an incentive for the use of equipment that makes more efficient use of the spectrum.

The Authority believes that the proposed formula as contained in the draft regulations already gives incentive to make more efficient use of the spectrum in that the user has every incentive to reduce the amount of spectrum that is denied to others.

### **7.5 Multi-year licence fees**

The Authority has decided to limit multi-year licence fees to certain categories of services, for a maximum period of five years. This is done so as to prevent spectrum hoarding, inefficient spectrum use and to allow for efficient planning.

## **8 CONCLUSION**

The Authority is grateful for all the comments and contributions received in strengthening the regulations and ensuring that the objective of promoting efficient spectrum usage, among others, is achieved. It is apparent that our spectrum pricing principles needed some overhauling and that AIP as a worldwide methodology of pricing spectrum is long overdue. The regulations also come at a time when Cabinet has approved a Radio Frequency Spectrum Policy whose spectrum pricing principles have been incorporated into the regulations. The Authority will work on an implementation plan and will give operators enough time to adjust to the new regulations before they become operational.

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