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**SUBMISSION BY MWEB IN RESPONSE TO THE NOTICE  
ON THE DRAFT RADIO FREQUENCY SPECTRUM FEE REGULATIONS**

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**1 INTRODUCTION**

- 1.1 MWEB Connect (Proprietary) Limited ("**MWEB**") thanks the Independent Communications Authority of South Africa ("**the Authority**") for giving it the opportunity to furnish the Authority with its comments on the Notice inviting comments regarding draft radio frequency spectrum fee regulations ("**the Draft Regulations**")<sup>1</sup> published in terms of section 4(1) of the Electronic Communications Act 36 of 2005 ("**ECA**").
- 1.2 MWEB records that it would like to make oral submissions to the Authority on the Notice, if public hearings are to be held as part of the consultative and participative process to be undertaken by the Authority on the Notice.

**2 EXECUTIVE SUMMARY**

- 2.1 Whilst MWEB supports the Authority's objectives of putting in place a radio frequency licence fee framework which is transparent, fair, competitive and non-discriminatory and furthermore supports the introduction of API as the methodology to be used for the determination of radio frequency spectrum fees and as more fully discussed in this submission, MWEB has the following concerns in respect of the Draft Regulations –
- 2.1.1 the Authority has indicated both in the Discussion Document prepared by it in support of the Draft Regulations and in the Draft Regulations that API will

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<sup>1</sup> Notice 304 of 2009 published in Government Gazette No 32029 dated 16 March 2009.

be used in conjunction with auctions to set the fees in respect of spectrum where demand exceeds supply. Auctions are not an appropriate mechanism for determining the award of scarce spectrum under the South African communications landscape and until such time as there is effective competition in the sector, tender processes should be used by the Authority to allocate scarce spectrum;

- 2.1.2 the proposed unit price per MHz paired of R2000.00 is too high. In order to ensure that the implementation of API is not compromised by incorrect fee structures, the Authority should reconsider its proposed unit price per MHz paired and MWEB proposes that the same be reduced to R500.00;
- 2.1.3 the Draft Regulations fail to deal with radio frequency spectrum which is exempt from licensing and must be amended to provide that radio frequency spectrum fees will not be payable in respect of radio frequency spectrum which is exempt from licensing;
- 2.1.4 the Draft Regulations fail to deal with guard bands and should be amended to record that no radio frequency spectrum fees will be payable to the Authority by a licensee in respect of the reservation of guard bands;
- 2.1.5 the Draft Regulations must be amended to provide for detailed rules and procedures in respect of the Authority's management and regulation of congested radio frequency spectrum;
- 2.1.6 in the interests of transparency, the Authority should publish a table detailing the frequency bands which are congested and those which are free from congestion;
- 2.1.7 proper dispute mechanisms are required for the resolution of radio interference disputes and for disputes which arise in respect of the use of congested bands;
- 2.1.8 the 'use it or lose it' principal must be of application to licensees who make use of radio frequency spectrum in all the bands and in particular to the use of radio frequency spectrum in congested bands;

- 2.1.9 it is not clear from the Draft Regulations whether the area sterilised factor will be determined with reference to a simulated area of coverage of the given topology and topography;
- 2.1.10 to the extent that the Draft Regulations contemplate spectrum trading, spectrum trading should only be considered once South Africa's communications sector is characterised by effective competition; and
- 2.1.11 the unidirectional factor will not assist in attaining the objective of efficient and effective spectrum utilisation and should thus not be included in the Draft Regulations.

### **3 OBJECTIVES OF THE REGULATIONS**

- 3.1 MWEB supports the Authority's objective of putting in place a radio frequency spectrum licence fee framework which is transparent, fair, competitive and non discriminatory and which has as one of its main aims the encouragement of the efficient and effective utilisation of spectrum by incentivising the migration to less congested bands as well as the roll out of infrastructure on an equitable and competitive basis for the benefit of all radio frequency spectrum users.
- 3.2 MWEB also supports the implementation of administrative incentive pricing ("**API**") as the methodology to be used for the determination of radio frequency spectrum fees as it is of the view that this approach is more suitable to addressing the needs of dynamic communications markets. Unlike cost based pricing models which have proved to be ineffective in managing congestion, API, which introduces incentive pricing as a means by which use of spectrum can be priced to reflect the value of the spectrum used, will -
  - 3.2.1 deter spectrum hoarding;
  - 3.2.2 promote the efficient use of the radio frequency spectrum;
  - 3.2.3 allow for the introduction of new services through the flexibility it affords to regulators to both increase and lower pricing; and

- 3.2.4 facilitate the alignment of spectrum usage to the realisation of identified policy objectives, such as the attainment of universal service objectives and the promotion of competitive and innovative service provision.
- 3.3 API is furthermore a pricing methodology which is ideally suited to those communications sectors which have been recently liberalised as is the case in South Africa. The flexibility afforded by API allows regulators to cater for increased spectrum demand, a characteristic of liberalised communications sectors, whilst at the same time being a valuable management tool for the regulation of radio frequency spectrum usage in that API encourages users to move to more spectrally efficient equipment, hand back spectrum which is not used and move to less congested spectrum.
- 3.4 API is also an effective platform for the introduction of other methods of allocating spectrum such as auctions, beauty contests, tenders and spectrum farming.

## 4 AUCTIONS

- 4.1 MWEB notes from the Discussion Document prepared by the Authority in support of the Draft Regulations that the application of API will be used in conjunction with auctions to set the fees in respect of spectrum where demand exceeds supply.<sup>2</sup>
- 4.2 Regulation 3(1) refers to the use of auctions and other internationally accepted methods of determining the price for radio frequency spectrum and provides as follows –

*"The objective of these regulations is to establish a transparent, fair, competitive and non-discriminatory Radio Frequency Spectrum Pricing based on administrative incentive pricing and which does not preclude the use of auctions and other internationally accepted methods of determining Radio Frequency Spectrum Price."*

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<sup>2</sup> See paragraph 5 on page 6 of Notice 304 of 2009 published in Government Gazette No 32029 dated 16 March 2009.

4.3 In addition, regulation 5(2) specifically provides that -

*"Where the Authority determines that the assignment of frequency should be made on a competitive basis, the radio frequency spectrum licence fee may be determined on the basis of an auction".*

4.4 Four methods have been used by international regulators to assign radio frequency spectrum where there are competing applications or where demand exceeds the available spectrum, namely -

4.4.1 tender processes (commonly known as 'beauty contests');

4.4.2 'first-come-first-served';

4.4.3 lottery; and

4.4.4 auctions.

4.5 Tender processes are the most commonly used method for the assignment of radio frequency spectrum to competing applicants or for the assignment of spectrum where spectrum is scarce. This method has the advantage of flexibility as regulators are able to select the evaluation criteria and thereby to effectively manage the realisation of policy goals. The ability to compare competing bids is also of great assistance to regulators when making a final determination.

4.6 Whilst auctions are internationally recognised as the preferred method for allocating scarce spectrum, they are not a universal panacea. In the South African context, the communications sector is dominated by operators with significant market power ("**SMP**") with considerable cash reserves. Auctions which by their very nature favour those bidders with access to sizable financial reserves are not an appropriate mechanism for the allocation of valuable spectrum where one of the objectives in allocating such spectrum is to promote increased competition. Rather than securing the equitable allocation of valuable spectrum, auctions will result in the concentration of high demand spectrum in the hands of a few SMP operators who already have considerable grants of spectrum by virtue of former historic entitlements. Until such time as

there is effective competition in the sector, MWEB is of the view that tender processes should be used as a means of allocating limited quantities of spectrum. Tender processes are also more effective in promoting policy objectives aimed at increasing competition and the roll out of infrastructure to under serviced areas as competing bids are evaluated on applicants' promises of performance as opposed to awarding spectrum to the highest monetary bidder (as in the case of auctions). If, auctions are to be used as a mechanism at all by the Authority then it will be necessary for the Authority to impose safeguards to promote competition to reduce the impact of dominant operators. One such safeguard could be the weighting of the tender scoring methodology in favour of those applicants who are first time new entrants or applicant's who have not historically had access to the radio frequency spectrum (including high demand spectrum).

## **5 FEE DETERMINATION**

- 5.1 Regulation 4 of the Draft Regulations deals with the manner in which radio frequency spectrum fees will be determined and provides that the fees payable for each category of frequency spectrum will either be determined by a pricing formula or by the application of the minimum fee.<sup>3</sup> Both the unit price per MHz of frequency spectrum and the minimum fee are detailed in Annexure A to the Draft Regulations which records that the minimum fee will be set at R120.00 and the unit price per MHz paired at R2000.00.
- 5.2 The correct setting of the minimum fee level and of the parameters which will differentiate the fees payable for high and low levels of usage is critical to the operation of API spectrum pricing. If fees are too low, they may encourage a misallocation of radio frequency resources. If they are set at too high a level, they may act as a disincentive to enabling technologies and they may also result in frequency bands becoming vacant thereby reducing the many economic benefits to be derived from the use of radio. Of further concern is that where the unit price is set at too high a level that this will ultimately result in higher retail service pricing to the detriment of the consumer.

- 5.3 MWEB is concerned that the unit price of R2000.00 per MHz paired is too high and that the unit price should be set at R500.00. As the unit price will be the basis for the calculation of the radio frequency spectrum fees with reference to the parameters detailed in regulation 8 of the Draft Regulations<sup>4</sup>, it is submitted that it should be set at a reasonable level and at one which will not result in the imposition of excessively high radio licence fees once the values attributable to the parameters in the formulae set out in regulation 6 have been applied in the determination of the fee. It will also be important to ensure that there is equitable access to the spectrum by new entrants and smaller operators and the setting of the unit price must be reflective of this requirement.
- 5.4 Where the unit price is set at a level which does not meet this requirement, this objective will be undermined. For these reasons, MWEB urges the Authority to reconsider the proposed unit price of R2000.00 and to seriously consider setting the unit price at R500.00.

## 6 EXCEPTIONS

- 6.1 Regulation 5 details the usage of radio frequency spectrum which will be exempt from licensing. In terms of regulation 5(1) equipment which is licence exempt will not be subject to radio frequency spectrum licence fees. Regulation 5(1) should be amended to refer to the radio frequency bands which are exempt from licensing in terms of the Licence Exemptions in respect of Radio Frequency Spectrum Regulations ("**ISM Regulations**")<sup>5</sup> as these regulations do not only exempt certain types of equipment from licensing but also detail the types of radio frequency usage which is exempt from licensing. In the circumstances, MWEB suggests that regulation 5 (1) be amended to give proper effect to the ISM Regulations and should be amended to read as follows –

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<sup>3</sup> Regulation 4(a) of the Draft Regulations.

<sup>4</sup> The parameters to be used by the Authority in determining radio frequency spectrum fees are – (i) bandwidth; (ii) frequency factor; (iii) geographic factor; (iv) congestion factor; (v) degree of sharing; (vi) area sterilized; (vii) minimum hop length; and (viii) unidirectional factor.

<sup>5</sup> Notice 926 of 2008 published in Government Gazette No 31290 dated 29 July 2008 and Notice 944 of 2008 published in Government Gazette No 31321 dated 8 August 2008.

*"Radio frequency spectrum and equipment that is licence exempt shall not be subject to a radio frequency spectrum licence fee."*

- 6.2 Regulation 5 should be amended to provide that guard bands which are reserved in the radio frequency spectrum as per the International Telecommunications Union ("ITU") allocations of 1 MHz will not be taken into account when determining the radio licence fee in terms of regulations 6, 7 and 8 of the Draft Regulations and that such bands will be exempt from spectrum licence fees.

## **7 REGULATION 8 - FACTORS AND LOOK UP TABLES**

- 7.1 The parameters and the various values to be attributed to the parameters which will be used for the calculation of the various formulae detailed in regulation 6 of the Draft Regulations are set out in regulation 8 of the Draft Regulations. The API pricing methodology requires the development of formulae to operate effectively. It is internationally recognised that in order to be effective the spectrum pricing formulae used by regulators for the implementation of API must be fair, transparent and simple.

### **7.2 Regulation 8(d) - Congestion**

- 7.2.1 Congestion is one of the factors which will be attributed a value for the purposes of determining the radio frequency licence fees for point to area services (excluding amateur, aeronautical and maritime services) and for all point to point fixed links. The table to regulation 8(d) of the Draft Regulations indicates that a value of 1.5 will be attributed to radio frequency usage which is congested by virtue of there being a 'waiting list' for such radio frequency spectrum and that a value of 1 will be attributed to the use of radio frequency spectrum where demand for that radio frequency spectrum has not exceeded supply or where the use of radio frequency spectrum is not congested.
- 7.2.2 As one of the requirements for the effective implementation of API is transparency, MWEB is of the view that the Authority should publish a table

on its website wherein those radio frequency bands which are congested and those which are not, are listed. The table should be subject to regular review and should be frequently updated to reflect any changes in congestion. Where pursuant to such a review, it is established that a particular radio frequency band is no longer congested then the fees payable for such a band must be adjusted downwards by the Authority. The necessity for such an approach is well illustrated, if one has regard to the fact that the Draft Regulations make provision for the award of multi-year licences in regulation 10. Where a licensee has a multi-year licence and makes use of radio frequency spectrum which is congested but which subsequently becomes uncongested in any year after the grant of such a licence, that licensee's radio frequency spectrum fees should be automatically reduced. In the absence of a mechanism which allows for the dynamic adjustment of radio frequency spectrum fees, the Draft Regulations could result in substantive discriminatory and unfair treatment to certain licensees. By way of example, where licensees are required to pay licence fees based on a congestion factor when in reality the use of the radio frequency spectrum in question is not congested such licensees will be subject to an unfair disadvantage and will be discriminated against where other licensees are granted access to the same radio frequency spectrum in exchange for the payment of a radio frequency spectrum fee which is not based on a congestion factor (i.e. at a lower price than the radio licence fees based on a congestion factor).

7.2.3 It will also be important for the Authority to detail the manner in which it intends to regulate bands which are shared and which are commonly subject to high levels of interference. Where radio frequency bands are shared there should be a documented procedure setting out the manner in which licensees will be able to establish additional links as well as the prices which will be associated with the use of such spectrum. In this regard, the Authority may wish to consider the Canadian approach to congestion where sophisticated pricing tools have been developed to charge differential fees for services in urban areas based on congestion factors for each cell of coverage. In terms of this approach, licence fees are

calculated on the amount of spectrum used and the relative scarcity of spectrum in an area. Canada has also developed a geographically based spectrum grid to provide a consistent way of measuring coverage across Canada wherein each cell is designated to be very congested, congested or non-congested and priced accordingly. The coverage area for each licensed service is then overlaid across the cells and charged according to the number and mix of cells covered. This effectively results in a wide area service in an urban centre attracting much higher licence fees than a small coverage system in a rural area.

- 7.2.4 The Authority should also specify the details of those licensees who make use of congested bands. These details should at a minimum include full details of the licensee, the frequency bands assigned to the licensee and the bandwidth used by the licensee. Furthermore, the Authority must ensure that proper mechanisms are put in place to resolve disputes associated with high usage bands so that users are able to see that the spectrum pricing procedures are transparent. As part of its regular review of congested bands, the Authority must constantly monitor and audit whether assigned spectrum in congested bands is being used or is being used efficiently by licensees. The 'use it or lose it' principle must be of application to licensees who do not make use of radio frequency spectrum in congested bands and where a licensee is found to be using radio frequency spectrum inefficiently in a congested bands that licensee must be required to take remedial measures as specified by the Authority to ensure efficient spectrum usage.

### 7.3 **Regulation 8(f) - Area sterilised (ASTER)**

- 7.3.1 The ASTER factors which are set out in the table to regulation 8(f) of the Draft Regulations attribute a value to the expense of an area sterilised for use by other licensees through a licensee's use of radio frequency spectrum in a particular area.

7.3.2 At page 16 paragraph 7.2.6 of the Discussion Document, the following is stated by the Authority –

*"In order to promote spectrum efficiency and a sparing use of limited spectrum, the area sterilized should be factored into the price of spectrum. For convenience and implementation simplicity, the area ranges are intended to allow easy application at the local, provincial and even national level.*

*The prospective licensee shall submit their system description including the location of their radio base stations as well as transmit power figures. The Authority shall estimate the area covered by the transmitters and feed this value into the price algorithm."*

7.3.3 At paragraph 7.6.4 on page 24 of the Discussion Document the following is stated –

*"For the point to area methodology, the key consideration is the area sterilized, i.e. denied to other users of the same spectrum. At present, for applications such as repeaters, the area of coverage is often set at a radius of 50 km which however means that the area effectively sterilized is a radius of 100km or approximately 31,400 km<sup>2</sup>. This implies an ASTER factor of 180.*

It is not clear from the Discussion Document or from the Draft Regulations whether the determination of the sterilised area will be made with reference to a theoretical area of coverage or to the actual area of coverage. As most international jurisdictions make the determination with reference to the actual area of coverage, MWEB submits that the Discussion Document and the Draft Regulations should be amended to make it clear that the determination will be based on the actual simulated area of coverage of the given topology and topography.

- 7.3.4 MWEB is concerned that the calculation example in paragraph 7.6.4 on page 24 of the Discussion Document<sup>6</sup> is not at all representative of what actually takes place in practice and that the reliance on such an example could result in skewed or inaccurate results. By way of illustration, a point to multi-point system is typically set to a 6 (six) to 8 (eight) kilometre radius. Repeaters are not used in a point to multi-point system but rather in support of a point to point system, such as a backhaul system. As the example in paragraph 7.6.4 on page 24 of the Discussion Document is both fallible and unreliable, MWEB is of the view that the same should be deleted in its entirety.
- 7.3.5 In addition, assignment changes should not be capable of only being implemented on the renewal of a licence but should be effected as and when required. Accordingly, MWEB is of the view that the sentence –  
*"Licensees may choose to request a change to their assignment upon renewal of their licence"*  
at paragraph 7.6.4 on page 24 of the Discussion Document should be amended to read –  
*"Licensees may request a change to their assignment as and when required."*
- 7.3.6 As there have been difficulties with spectrum trading in those countries where it has been implemented such as in the case of New Zealand and Australia, MWEB believes that South Africa which is a recently liberalised market is not ready for the introduction of spectrum trading and until such time as there is a level playing field in respect of access to spectrum, spectrum trading should not be a consideration. Rather than relying on spectrum trading as a mechanism to free up radio frequency spectrum, the

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<sup>6</sup> The specific words which are of concern are the following at paragraph 7.6.4 on page 24 – *"At present, for applications such as repeaters, the area of coverage is often set at a radius of 50 km which however means that the area effectively sterilized is a radius of 100km or approximately 31,400 km<sup>2</sup>. This implies an ASTER factor of 180."*

Authority should implement the 'use it or lose it' principle as a mechanism to ensuring equitable and competitive access to the radio frequency spectrum.

#### 7.4 Regulation 8(h) - Unidirectional factor

- 7.4.1 In terms of the table to regulation 8(h), the unidirectional ("**UNIBI**") factor, provides a discount to licensees if they only provision a service in a single direction on a bi-directional link. Thus if a licensee provisions services using Frequency Division Duplexing ("**FDD**") as the duplexing method, and provides a uni-directional service, then in effect the licensee is only using one of the paired spectrum bands available on the point to point or point to multi-point link, whilst the other is wasted. In this regard, no other licensee is able to use the frequency for providing a bi-directional service. Based on the UNIBI factor regulation 8(h), the licensee spectrum fee is discounted by 25% or 50% depending on the service type (i.e. point to point or point to area).
- 7.4.2 MWEB is of the view that the UNIBI factor does not sufficiently serve to penalise the licensee as the scarce spectrum is effectively being wasted. MWEB thus recommends that the licensee using paired spectrum for the purposes of providing a unidirectional service should pay the same fee as a licensee using it for bi-directional services. The need for the UNIBI factor is thus rendered redundant and in MWEB's view the UNIBI should be removed from the Draft Regulations.

## 8 ASSIGNMENTS

- 8.1 Paragraph 7.7 on page 25 of the Discussion Document provides as follows –

*"The new pricing system does not necessarily cause the Radio Frequency Spectrum more expensive, but it remains a scarce resource. Assignment of Radio Frequency Spectrum remains at the discretion of the Authority and applicants for an assignment of Radio Frequency Spectrum (including additional spectrum) should furnish all the information required by the Authority to support their application."*

8.2 Regulations 12 and 13 of the Draft Regulations further provide that -

*"Licensees must furnish all information concerning the equipment they deploy as required by the Authority."<sup>7</sup>*

*"Assignment of Radio Frequency Spectrum and the issuance of licences to use Radio Frequency Spectrum is at the discretion of the Authority and applicants for Radio Frequency Spectrum must furnish all information to support their application as required by the Authority."<sup>8</sup>*

8.3 In order for there to be legal certainty as to the information to be submitted to the Authority in respect of deployed equipment and in support of radio frequency applications, it is submitted that this information should be specifically prescribed by the Authority in the Draft Regulations. The Draft Regulations should accordingly be amended to detail the information to be submitted to the Authority in terms of regulations 12 and 13.

## **9 RECOMMENDATIONS**

9.1 Without derogating from any of the arguments or proposals made in this submission and in summary of MWEB's key areas of concern, the following aspects of the Draft Regulations must be addressed –

9.1.1 the Draft Regulations should be amended to provide that until such time as there is effective competition in the communications sector tender processes will be used by the Authority to allocate scarce spectrum;

9.1.2 the proposed unit price per MHz paired must be reduced to R500.00;

9.1.3 the Draft Regulations must be amended to provide that the use of radio frequency spectrum which is exempt from licensing will also be exempt from the obligation to pay radio frequency spectrum fees;

9.1.4 the Draft Regulations should be amended to record that no radio frequency spectrum fees will be payable for the reservation of guard bands;

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<sup>7</sup> Regulation 12 of the Draft Regulations.

- 9.1.5 the Draft Regulations must be amended to provide for detailed rules and procedures in respect of the Authority's management and regulation of congested radio frequency spectrum;
- 9.1.6 in the interests of transparency, the Authority should publish a table detailing the bands which are congested and those which are free from congestion on its website;
- 9.1.7 the Draft Regulations must be amended to provide for proper dispute mechanisms for the resolution of radio interference disputes and disputes pertaining to the use of congested bands;
- 9.1.8 the 'use it or lose it' principal must be of application to licensees who make use of radio frequency spectrum in all bands but in particular in congested bands;
- 9.1.9 the determination of the area sterilised factor must be determined with reference to the simulated area of coverage of the given topology and topography;
- 9.1.10 the Draft Regulations should not deal with spectrum trading which should only be considered by the Authority once South Africa's communications sector is characterised by effective competition; and
- 9.1.11 regulation 8(h) which pertains to the unidirectional factor should be deleted in its entirety.

## **10 CONCLUSION**

- 10.1 MWEB once again thanks the Authority for giving it this opportunity to comment on the Notice and confirms that it would like an opportunity to make oral representations to the Authority on the Notice.
- 10.2 Please do not hesitate to contact Leizle Nothnagel of MWEB on (021) 596-8737 or Calvo Mawela on 082 372 0113 should you have any queries or

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<sup>8</sup> Regulation 13 of the Draft Regulations.

should you require any additional information from MWEB in respect of this submission.