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**Vodacom's written submission in response to ICASA's Second Draft Radio Frequency  
Spectrum Assignment Plan for the frequency band 825 to 830 MHz and 870 to 875 MHz  
for public consultation**

**[Government Gazette Number: 41082, Notice Number 648 of 1 September 2017]**

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## INTRODUCTION

Vodacom (Pty) Ltd (“Vodacom”) welcomes the opportunity to comment on the “Second Draft Radio Frequency Spectrum Assignment Plan for the frequency band 825 to 830 MHz and 870 to 875 MHz for public consultation” (“the Second Draft Assignment Plan”)<sup>1</sup> as published by ICASA (“the Authority”) in Government Gazette No. 41082, Notice Number 648 of 1 September 2017.

Vodacom confirms its willingness to participate in any further consultative process, which the Authority may undertake in this regard.

Our submission is comprised of two parts:

- Part A: Vodacom’s comments in principle on the Second Draft Assignment Plan;
- Part B: Vodacom’s specific comments on the Second Draft Assignment Plan.

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<sup>1</sup> Independent Communications Authority of South Africa, Notice 648 of 2017 Government Gazette No. 41080, of 1 September 2017

## 1 Part A: In Principle Comments

Vodacom notes that Second Draft Assignment Plan is unchanged in substance from the First Draft Assignment Plan<sup>2</sup> with the exception of sections 8 and 9 dealing with Assignment and Revocation or Amendment.

Vodacom refers the Authority to its earlier submission on the Draft International Mobile Telecommunications Roadmap<sup>3</sup> where Vodacom expressed the position that:

*"IMT 850 is not a feasible band in a harmonized Region 1 IMT 800 band planning environment. The interference issues of having an uplink and downlink block less than 3MHz apart is of significant concern and this would require radio coordination to mitigate interference. In addition, Vodacom's view is that it would be preferable for Neotel to migrate to a harmonized IMT 8000 LTE assignment as this seems the only practical option for ensuring unobstructed national deployment"*

In the same submission, Vodacom also observed that *"Similar coverage obligations for both 800 and 850 MHz would likely lead to significant interference between 850 MHz and 800 MHz deployments."*

The National Radio Frequency Spectrum Plan<sup>4</sup> states that *"In South Africa the use of the 800 MHz band will take precedence over the use of the 850 MHz band."*

Vodacom implores the Authority to follow a rigorous, rational and prudent process to determine amongst other things:

- If the current assignment of CDMA850 spectrum is used efficiently enough to justify migration instead of revoking the licence. If migration is justified, what is the most economically optimal destination for migration;
- What the likely economic impact of interference between the 825 - 830 MHz IMT850 uplink channel and the 791 - 812 MHz IMT800 downlink channel will be;
- The overall long-term cost versus benefits of deviating from ITU Region 1 harmonisation with respect to the co-existence of IMT800 and IMT850.

Vodacom confirms that its position remains unchanged and that Vodacom opposes the possible implementation of IMT850 (3GPP band 5) co-existing with IMT 800 (3GPP band 20).

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<sup>2</sup> Independent Communications Authority of South Africa, Notice 1014 of 2014 Government Gazette 38214 of 14 November 2014

<sup>3</sup> Independent Communications Authority of South Africa, Notice 729 of 2014 Government Gazette 37948 of 27 August 2014

<sup>4</sup> Independent Communications Authority of South Africa, Government Gazette 36336 of 28 June 2013

## 2 Part B: Specific Comments

Where applicable, Vodacom refers the Authority to extracts from Vodacom's submission on the First Draft Assignment Plan<sup>2</sup>.

### 2.1 Section 4: Channeling Plan

Vodacom opposes the possible implementation of IMT 850 (3GPP band 5) co-existing with IMT 800 (3GPP band 20). The proposed channelling arrangement of IMT 850 essentially translates to the Uplink of IMT 850 potentially occupying 5MHz of the 11MHz centre gap provisioned specifically as the centre gap of the IMT 800 band. Please refer to Figure: 1 below.

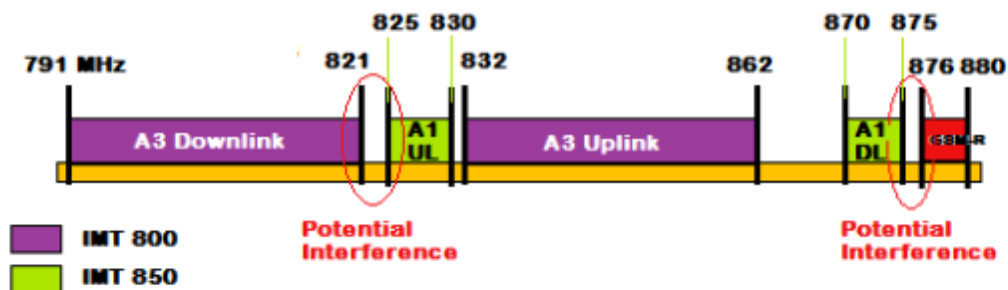


Figure: 1

The channelling plans of IMT 800 and IMT 850 will therefore only make provision for 4MHz guard between the IMT 800 Downlink and IMT 850 Uplink. In the case where systems in IMT 800 and IMT 850 operate in the same

geographic area and at the same time, this provision will be insufficient to mitigate interference between IMT 800 Downlink and IMT 850 Uplink and would therefore present significant potential for interference from IMT 800 Downlink to IMT 850 Uplink and vice versa, which is of significant concern. Vodacom submits that the potential for such interference will be applicable irrespective of the deployment of LTE in both IMT 800 and IMT 850. Vodacom recommends that a minimum of 10MHz should be provisioned as the centre gap (as also can be noted through the channel arrangements of other IMT bands) between Uplink and Downlink and therefore submits that the co-existence of both IMT 800 and IMT 850 will not be technically feasible and should not be adopted.

A further area of concern due to interference is between the IMT 850 Downlink and the GSM-R Uplink which only provides for 2.25 MHz (assuming a reduction of Neotel's assignment to 2x3.75MHz as proposed by the Authority to support co-existence with GSM-R) of guard band between IMT 850 and GSM-R. This will be of particular concern while Neotel continues to operate a CDMA network as it poses significant risk to interference with PRASA's GSM-R network in cases where co-existence of both networks are prevalent. Vodacom recommends a minimum guardband of 4MHz to protect GSM-R.

Vodacom urges the Authority to consider the implications of potential interference between systems operating in IMT 850 and IMT 800 (and GSM-R if co-existing with CDMA), should IMT 850 be adopted as proposed by the Authority. It is Vodacom's submission that interference from IMT 850 could render applicable portions of these bands unusable due to interference where co-existence may be prevalent. The prevalence of such interference could therefore defeat the purpose of releasing the critical IMT 800 band to alleviate the challenges faced by mobile operators due to the increasing demand for IMT services.

Vodacom submits that the Authority only adopt a channelling arrangement of A3 of ITU-R Recommendation M.1036-4, namely IMT 800 and not the proposed combination of A1 (IMT 850) and A3 (IMT 800).

## 2.2 Section 5 Requirements for usage of radio frequency spectrum

### 2.2.1 Section 5.6.1

Vodacom has previously made submissions to the Authority indicating that Vodacom would like to utilise higher power limits on base station equipment for radio transmission. This is especially applicable in rural areas and that the current limitations were unnecessarily restrictive as Vodacom still adheres to and maintains various ICNIRP and safety standards that ensures that the use of higher power limits to gain efficiencies remain safe.

The 61dBm/5MHz EIRP limitation as proposed in the draft Radio Frequency Spectrum Assignment Plan document is predominantly introduced for interference protection between FDD and TDD systems collocated in 2.6GHz band (3GPP Band7) but is also applied for LTE800 (DVT coexistence) and other bands in Europe. Basically, the EIRP limit is defined to protect against the blocking of adjacent systems' receive paths. Vodafone also supports this requirement and this is therefore currently implemented in applicable LTE-Design parameters.

The currently implemented EIRP limit is as defined in "CEPT Report 19 - Report from CEPT to the European Commission in response to the Mandate to develop the least restrictive technical conditions for frequency bands addressed in the context of WAPECS" and the "ITU-R Report M.2039". The EIRP limit is also defined as technology neutral. It should however be noted that the ECC Report: 2008/477/EC recommends that this limit can be relaxed to 68dBm/5MHz for specific deployments as follows:

"Member States can relax this limit to 68dBm/5MHz for specific deployments for example: in areas of low population density provided that this does not significantly increase the risk of terminal station receiver blocking."

It is therefore Vodacom's recommendation that the Authority introduce flexibility in respect of the EIRP limit of 61dBm/5MHz for all spectrum assignments allowing for higher EIRP limits for implementations in rural and suburban areas. It is proposed that 2 EIRP limit values be specified as follows:

9. 61dBm/5MHz for urban deployments and,
10. 68dBm/5MHz for more suburban / rural deployments.

### 2.2.2 Section 5.6.2

In the case of mobile station transmitters, the International standard for transmissions by IMT mobile devices are in the order of 200mW (23dBm EIRP). The value of 23dBm EIRP is reasonable but it must be clearly defined as only applicable to mobile terminals alone. In the case where such mobile terminals or equipment are further enhanced with accessories for deployment as fixed terminals, example through the connection of an external antennae, the total allowed EIRP should be increased to approximately 33dBm EIRP (23dBm + 10dBm gain)

### **2.2.3 Section 5.6.3**

Vodacom supports the implementation of higher EIRP limits and requests that the Authority adopts higher limits as proposed in sections 5.6.1 and 5.6.2.

### **2.2.4 Section 5.6.4**

The specified 3GPP standard (3GPP TS 36.521-1: Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Conformance testing) has been adopted internationally and it is therefore recommended that the Authority adopt the same specification for South Africa which Vodacom also requires applicable mobile device manufacturers to adhere to.

## **2.3 Section 7 Co-ordination Requirements**

Vodacom agrees with the content of Appendix D. Furthermore, Vodacom would like to inform the authority that cross-border co-ordination is currently underway between Lesotho and South Africa. It is proposed that similar structures and processes as derived from this exercise should be introduced for other neighbouring countries within the Southern African SADC Region .

Finally, Vodacom would like to request clarity from the Authority in respect of the intended meaning of the following statement as quoted in the RFSAP under section 7.2:

"If TDD is in operation across both sides of a border and is synchronised across the border then field strength levels as well."

## **2.4 Section 9 Amendment**

### **2.4.1 Section 9.2 and Section 9.4**

Vodacom requests that the Authority defines the "performance period".

### **2.4.2 Section 9.5**

Vodacom notes that the Authority recognizes that "there may be issues with respect to interference that may be experienced by typical applications using apparatus in the 863-870MHz band which may operate on an license exempt basis".

Vodacom submits that it would be imprudent to proceed with the assignment of IMT850 spectrum without a thorough understanding of the impact of interference on the Short-Range Devices in use in South Africa. The adverse impact of interference on safety of life devices such as pacemakers must be of particular concern to the Authority.

END