MTN'S RESPONSE TO ICASA'S DRAFT FREQUENCY MIGRATION REGULATION AND FREQUENCY MIGRATION PLAN AS PUBLISHED IN GOVERNMENT GAZETTE NO 35598 DATED 17 AUGUST 2012

12th October 2012

INTRODUCTION

On **17th August 2012**, (by way of Notice 606 of 2012), the Independent Communications Authority of South Africa ("ICASA") published a Notice of Inviting comments regarding the draft frequency migration regulation and radio frequency migration plan in terms of section 4, read with sections 31(4), 34(7)(c)(iii), 34(8) and 34(16) of the Electronic Communications Act, 2005 (Act no. 36 of 2005) ("the Act") and invited interested persons to furnish written submissions on the proposed regulations and plan to ICASA.

MTN welcomes the initiative of the Authority in publishing both the frequency migration regulation as well as the migration plan.

MTN is grateful for the opportunity to provide written comments on the aforementioned proposed migration regulations and plan. We believe that this matter is long overdue and constructive engagement and consultation is a necessity in order to bring about a framework that would be to the optimum benefit of all South Africans.

MTN supports the principles of the draft radio frequency migration regulations as enunciated in paragraph 3 on page 7 of the Government Gazette and as such we believe that these draft regulations, once finalised, should provide the required clarity to this required undertaking. Applied correctly, the final migration plan could be the springboard that South Africa requires to achieve broadband access for all.

MTN confirms its willingness to participate in any oral hearings which may be scheduled in regard to the draft frequency migration regulation and frequency migration plan.

MTN's submission is comprised firstly of general comments regarding the draft regulation and migration plan, followed by specific comments on the draft migration plan.

1. GENERAL COMMENTS

MTN commends the Authority of a well drafted document; there can be no doubt that ICASA has the rights and responsibility to develop a migration regulations and subsequent migration plan.

It is heartening to note that ICASA has taken cognizance of the preliminary decision made during the World Radio Conference-12 to allocate the 700MHz for IMT services for Region 1 (EMEA)

However, MTN is of the opinion that the draft proposals are too simplistic in nature and does not delve into the detail of how an actual migration will take place but rather simply identifies the band that the Authority deems necessary to migrate.

MTN highlights that migration of frequencies is a complex task especially where there are current users who may have made significant investments, and suggests that the Authority enhances its considerations to include the public, economic and social benefit when identifying the radio frequency spectrum bands that are to be migrated and not just the alignment with SADC FAP.

In principle, in a technology neutral environment such as is applicable in South Africa, a frequency licensee ought to be able to use any technology or standard as long as that technology or standard is within the allocation as determined by the Authority and/or the ITU. Consequently, MTN proposes that when the frequency spectrum assigned to a licensee is to be used by that licensee for a different technology or standard but in circumstances where the allocation as specified within the table of frequency allocations (to indicate the purpose of that frequency band) remains the same, the involvement of the Regulator should be kept to a minimum. By way of example: where a licensee used GSM and wishes to evolve to LTE it should be able to do so without oversight from the Authority as both standards or technologies fall within the allocation of IMT services.

However, where the new utilization of the frequency band falls outside the existing allocation, then the Authority must approve and amend the frequency licence and conditions of service. An example would be where a frequency assignment was done in a band where it was allocated to fixed links, a licensee should not be able to merely as a result of the frequency assignment be able to use that to then deliver

IMT services. This change in usage that does not fall within the parameter of the allocation per the Band plan must be subject to public debate, where it is in the public interest.

MTN notices with concern that the Authority references on several occasions, Government Gazette 34872 which is the Draft invitation to apply for Radio Frequency Spectrum Licence to provide mobile broadband wireless access service for urban and rural areas using the Complimentary Bands, 800 MHz and 2.6 GHz.

MTN reminds the Authority that this particular gazette was withdrawn on the 5 March 2012 until further notice and pending the finalisation of the Minister's policy directions. Referencing the withdrawn notice is indicative that the Regulator has pre-determined the method of assignment for these bands and will not give due consideration to the still to be published Ministerial policy direction. As such MTN recommends that any reference to Government Gazette 34872 be removed from the text as it is non-existent.

2. SPECIFIC COMMENTS

Ad paragraph 1.2.3 Spectrum re-farming

The Authority explains the concept of spectrum re-farming as follows

> *"Generally speaking, re-farming may be seen as process constituting any basic change in conditions of frequency usage in a given part of radio spectrum. Such basic changes might be:*
>
> 1. *Change of technical conditions for frequency assignments;*
> 2. *Change of application (particular radiocommunication system using the band);*
> 3. *Change of allocation to a different radiocommunication service."*

In the recommendation of the ITU-R SM.1603-1(which document is attached hereto), the following definition is proposed:

"Spectrum redeployment (spectrum re-farming) is a combination of administrative, financial and technical measures aimed at removing users or equipment of the existing frequency assignments either completely or partially from a particular frequency band. The frequency band may then be allocated to the same or different service(s). These measures may be implemented in short, medium or long time-scales."

MTN is in agreement with this recommendation of the ITU and in turn suggests that the Authority adopts such a such a definition.

In the draft migration plan *"The term re-farming is used to describe:*

- *the process where a GSM operator changes the use of all or part of the spectrum used for GSM to UMTS / LTE; especially where the spectrum licence has specified the technology (as GSM) and the operator licence has to be changed*[1] *."*

[1] Even where the licences are not technologically specific and it could be argued that the change in use from GSM to LTE does not require a regulator to get involved, in order to make efficient use of the spectrum it may be necessary to modify the individual assignments within the band.

MTN believes that only in the instance where a license is technology specific should an operator's licence have to change. However unlike the footnote, MTN reiterates as above that where licences are not technology specific and where the frequency allocation remains as specified within the table of frequency allocations (indicate the purpose of that frequency band), such as the example above, then the involvement of the Regulator should be kept to a minimum as the use of the frequency that licensee still falls within the allocation.

Ad Paragraph 1.2.4 Other definitions

"Where the user of a radio frequency has a change of assignment within the same band, usually to allow greater efficiency in the use of the spectrum, this may be termed ***in-band migration****.*

In some cases, a radio spectrum user may not only have his assignment changed in the same band, but have a new spectrum allocated in a different band. This has occurred with respect to the balancing of spectrum assignments in the GSM 900 MHz and 1800 MHz bands (refer to Appendix B.1.1.7) and may well become a feature of mobile broadband assignments in the future."

MTN notes that the reference to the aforementioned Appendix is incorrect as there is no Appendix B.1.1.7, We believe that the correct reference should be to "Annex International Best Practice Benchmark".

Ad Paragraph 3.3.2 Time Frame to migrate existing end users

"Potential areas that may arise in the future include:

- *Conversion of existing cellular frequencies to HSPA/ LTE.*
    - *Because of the large number of GSM customers with voice / text only phones and the availability of other bands for mobile broadband, it is unlikely that GSM bands will be shut off any time soon.*

A switch over from 3G / HSPA to LTE – if this ever occurs would involve a time frame of 3-5 years to accommodate the life cycle of the end-terminal equipment"

We don't understand the reference that there may be potential concerns or areas in the future that need regulatory intervention. Any evolution of networks will be operator driven as part of the normal operational efficiencies and customer experience and service issues as driven in a competitive market place.

We see no reason why there could be any contemplation by the regulator to specify technology and standard migration. This document deals with frequency migration.

Ad Paragraph 4.8 Key issues with respect to migration

"Mobile broadband. 'Mobile' broadband is an important use of radio frequency spectrum at the current time and there is a large demand for spectrum in several bands for this purpose. As such, mobile broadband is the service that is most likely to require the migration of other services to accommodate its spectrum needs. The allocation of spectrum for mobile broadband / IMT has already been done via WRC resolutions for ITU region 1 as well as per SADC proposed common sub-allocation/ utilization. This ensures that equipment is readily available and a harmonized service can be provided both across the Southern African region as well as other countries in Region 1."

MTN is in agreement with statement, however although this document deals with the migration plan, it is imperative that the spectrum for mobile broadband be assigned correctly and expeditiously in order for South Africa to achieve its broadband objectives.

MTN is of the opinion that any increase in internet penetration or internet access will be delivered in the short to medium term by means of wireless and more specifically mobile broadband. Any deferment or further delay in the assignment of appropriate frequency bands will be detrimental to the achievement of South Africa's 2020 vision.

Ad paragraph 4.11.10 380 - 400 MHz

'This band will be allocated as a contiguous block for public protection and disaster relief (PPDR) as well as public safety with users including SAPS, SANDF, the ambulance service, metro police and Fire-fighting services. All other users will migrate out of this band. This allocation would recognize the importance having a band dedicated for public safety and free of any other potential sources of interference. In ideal circumstances, these users would make use of a common digital public trunking network which would also promote interoperability between such users in periods of emergency.

It is also recommended that private establishments who work alongside and are responsible for public safety also operate within this band. This would allow interoperability with other public safety/ emergency services users.

The proposed allocation of this band would be as per SADC proposed sub-allocation/ utilization

- *380.0-387.0 MHz paired with 390.0-397.0 MHz for digital systems to be used for PPDR.*
- *387.0-390.0 MHz paired with 397.0-399.9 MHz. To be used mainly for digital systems (PMR and/or PAMR).*
- *It is the New ICASA proposal that this band be exclusively reserved for public safety and all users (e.g. SAPS etc) migrate into this band.*
- *Considerations be made to adopt a common digital trunking technology standard which would allow:*
    - *Economic savings by operating and sharing a single network infrastructure*
    - *Improving effectiveness and promoting interoperability."*

MTN supports in principle the allocation of a dedicated band for the use of public protection and disaster relief.

Ad paragraph 4.11.13 450 - 470 MHz

"This band is currently used for Trunked Mobile with several users including the Railways (Transnet) and mines (Figure 1~~Figure 1~~). The SADC FAP proposed common sub-allocation/ utilization seeks to allocate this spectrum for Mobile IMT. This is important to note that several adjacent countries (e.g. Mozambique) are moving to implement this proposal. Although the band has a large number of assignments, a recently concluded spectrum audit indicates that the spectrum usage is quite low – indicating inefficient spectrum use.

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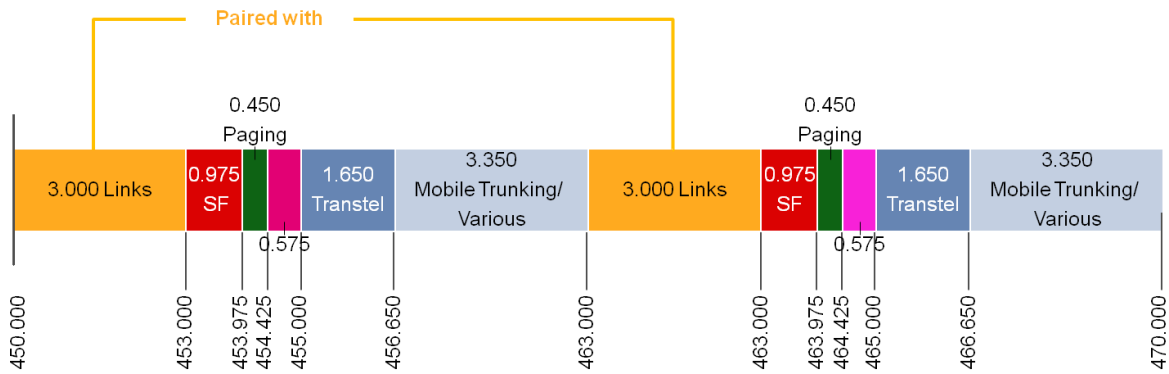

Figure 1 Current assignment 450 – 470 MHz

In view of the other spectrum that has been identified for IMT, it is proposed therefore:

- *To migrate the current users out of this band into the radio frequency 3 GHz and above space*
- *To allocate this band to Mobile (IMT) as per Res. 224 of WRC-07."*

MTN strongly supports this proposal as the propagation characteristics of this frequency band are ideally suitable for rural deployment.

Ad paragraph 4.11.14 694 - 790 MHz

'This band has been assigned for IMT (Terrestrial) for Region 1 countries at the WRC-12 and is often termed as Digital Dividend 2. Currently this band is occupied by UHF TV.

Given that there is a current planned migration underway in the 790 – 862 MHz band (due to be completed by 2015), a proposal would be to concurrently define and implement a migration plan for the 694 – 790 MHz band as well. The time-line to complete the migration could be staggered as compared to the 794 – 862 MHz band. This would ensure that no new services are allocated for this band and the existing users have a finite and defined period to migrate.

It is proposed that:

- *The migration plan is aligned with the on-going efforts within the 800 MHz band as defined in Government Gazette 34872*[2]*.*
- *With respect to the small number of Studio Links in this band; these must be migrated out and given point to point fixed assignments.*
- *Self Help Stations must be migrated out into the broadcast bands below 692 MHz.*

MTN strongly supports this proposal as the propagation characteristics of this frequency band are equally suitable for rural deployment and in building penetration..

[2] Government Gazette 34872: Draft invitation to apply for Radio Frequency Spectrum Licence to provide mobile broadband wireless access service for urban and rural areas using the Complimentary Bands, 800 MHz and 2.6 GHz

Ad paragraph 4.11.15 790 - 862 MHz

'This band has been allocated for IMT (Terrestrial) for Region 1 countries at WRC-07 and is often termed as Digital Dividend 1. Currently this band is occupied by UHF TV. Migration is planned to be completed by 2015.

It is proposed that:

- *The migration plan is aligned with the on-going efforts within the 800 MHz band as defined in Government Gazette 34872[3].*
- *With respect to the small number of Studio Links in this band; these must be migrated out and given point to point fixed assignments.*
- *Self Help stations must be migrated out into the broadcast bands below 692 MHz."*

MTN supports this proposal but reiterates that there should be no reference to Government Gazette 34872: Draft invitation to apply for Radio Frequency Spectrum Licence to provide mobile broadband wireless access service for urban and rural areas using the Complimentary Bands, 800 MHz and 2.6 GHz, as this notice has been withdrawn.

Ad paragraph 4.11.16 862 - 890 MHz

Ad paragraph 4.11.17 890 - 942 MHz

Ad paragraph 4.11.17 890 - 942 MHz

MTN submits that the aforementioned three paragraphs should be rewritten. Due to the extensive errors within this section MTN has not made reference to the proposals but rather suggests that these paragraphs be rewritten in their entirety, in order to give a clearer understanding of what the Authority proposes MTN would like to highlight that the frequency spectrum (880-890 MHz paired with 925-935 MHz) is not assigned to Neotel but rather Cell C.

[3] Government Gazette 34872: Draft invitation to apply for Radio Frequency Spectrum Licence to provide mobile broadband wireless access service for urban and rural areas using the Complimentary Bands, 800 MHz and 2.6 GHz

Cell C is not assigned the entire frequency spectrum between 890 – 915 MHz paired with 925 – 935 MHz but rather that this band is shared between MTN, Vodacom and Cell C add finally that the band 942 - 960 MHz is not assigned exclusively to MTN and Vodacom but that Cell C also has assignment within this band.

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Ad paragraph 4.11.28 2300 - 2450 MHz

The band is currently in use for several services including:

- *Fixed links – 2307 – 2387 MHz paired with 2401 – 2481 MHz.*
- *Outside broadcasting links (28 MHz) – primary basis at (2377, 2471 MHz), secondary basis at (2321, 2349 MHz, 2415, 2443 MHz).*
- *ISM – 2400 – 2483.5 MHz.*

As per SADC FAP proposed common sub-allocation/ utilization, it is proposed to:

- *Allocate 2300 – 2400 MHz for IMT (Terrestrial).*
- *Continue to retain allocation of 2400 – 2483.5 MHz for ISM.*
- *Existing Fixed links could be migrated above 3 GHz.*
- *Migrate outside-broadcasting links in line with the DTT migration (potentially to 1518 – 1559 MHz band).*

MTN understanding of the assignment of radio frequency spectrum is in line with what the Authority has outlined above, that is to say assignments where made for fixed links. We are also under the impression that Telkom is assigned 34 x 2MHz Duplex within this band and that no spare capacity is available within this band. We are therefore left slightly perplexed by how 8ta, a division of Telkom can claim they have 60MHz of spectrum within this band, which they intend to utilise for the deployment of TDD-LTE.

It is MTN's opinion that a change in application such as what is being implemented by Telkom beyond the scope of the initial allocation of that frequency band and would require that firstly the allocation be amended. It is only once the allocation has

been amended that any frequency assignments could follow. Howevwer, we believe that this frequency band would be seen as a high demand frequency band and would then only be capable of assignment once the Miniterial policy directive process has been finalised.

We are also unable to fathom how a FDD assignment to the fixed –line incumbent has been converted for TDD use in the absence of a public process and seemingly without Regulatory approval.

It is quite possible that Telkom has sought regulatory approval from the Authority and that this has not been communicated to the market. In which case, existing mobile operators are left at a severe disadvantage as they are unable to deploy a commercial LTE network on a ubiquitous level as mobile operators have been unable to obtain high demand spectrum within the digital dividend and 2.6GHz bands.

If such approval was sought and obtained then MTN is of the opinion that there has been a disregard of the objects of the Act more specifically Section 2(g) which is to ”promote an environment of open, fair and non-discriminatory access to broadcasting services, electronic communication networks and electronic communication services.”The Authority is requested to divulge any details that it may have relating to the change of use of this particular frequency band by Telkom.

Ad paragraph 4.11.29 2500 - 2690 MHz

‘This band is being used by Sentech (65 MHz) and WBS (15 MHz); 125 MHz is currently available for assignment. As per SADC FAP proposed common sub-allocation/ utilization this band has been allocated for Mobile IMT.
It is proposed to:

- *Align re-planning efforts within the 2.6 MHz band as defined in Government Gazette 34872[4].*

[4] Government Gazette 34872: Draft invitation to apply for Radio Frequency Spectrum Licence to provide mobile broadband wireless access service for urban and rural areas using the Complimentary Bands, 800 MHz and 2.6 GHz

- *Allocate the band to Mobile IMT."*

MTN would suggest that an audit be done to evaluate the level of utilisation within this band. If it is found to be under-utilised then migrate the existing licencees out of this band and assign via an ITA process.

MTN highlights that within PART 1 of these draft documents, namely Draft Frequency Migration Regulations, Section 4 Process for Radio Frequency Migration

> *The Authority shall initiate a process of radio frequency migration in the following circumstances:*
>
> *(d) Where the Authority has determined that a change in use of the frequency is necessary for efficient utilisation of the radio frequency spectrum and to otherwise meet the objectives of the Act.*
>
> *(e) Where the Authority has determined that a change in a radio frequency spectrum licence holder's assignment within a radio frequency band is required to enable more efficient use of the radio frequency spectrum (in-band migration).*

As a large portion of the radio frequency spectrum licensed in this band has been lying fallow for a lengthy period, it would be appropriate that this spectrum be returned to the Authority for reassignment.

Furthermore, MTN reiterates that there should be no reference to Government Gazette 34872: Draft invitation to apply for Radio Frequency Spectrum Licence to provide mobile broadband wireless access service for urban and rural areas using the Complimentary Bands, 800 MHz and 2.6 GHz, as this notice has been withdrawn and clearly does not exist any longer.

Ad paragraph 4.11.30 3400 - 3600 MHz

"This band is currently being utilized by:

- *Sentech (national).*
- *Neotel (national).*

- *Telkom (national).*
- *USAL (regional).*

In terms of WRC 07 decisions and as per SADC FAP proposed common sub-allocation/ utilization it is proposed to:

- *Allocate for mobile service on a primary basis and use for Mobile IMT. This would also result in a harmonized Mobile IMT band across the entire SADC region.*
- *Migrate existing users out of the band*.

MTN supports this proposal.

Ad paragraph 4.11.37 40000 MHz and above

"Although out-migration is not an issue above 40GHz, the following comment should be made:

- *Frequency bands above 40 GHz are relatively under-utilized. Equipment is available off the shelf for high bandwidth PTP links over distances of up to 5km. It is proposed that in the spectrum above 40GHz, allocations are made for Fixed Services such as PTP links – which would be useful especially in metropolitan areas for line-of-sight (LoS) high capacity data links*."

MTN supports this proposal.

Ad Paragraph 4.13.1 Definition of spectrum re-farming

"Spectrum re-farming can be defined as a process of changing the conditions of frequency usage in any part of the radio spectrum[5]. This may include:

- *Change of the technical conditions of the frequency assignment.*

[5] ICT Regulation Toolkit

- *Change of the application.*
- *Change of allocation to a different telecommunications service.*

In the recommendation of the ITU-R SM.1603-1, the following definition is proposed (Which definition MTN supports and proposes that the Authority uses):

"Spectrum redeployment (spectrum re-farming) is a combination of administrative, financial and technical measures aimed at removing users or equipment of the existing frequency assignments either completely or partially from a particular frequency band. The frequency band may then be allocated to the same or different service(s). These measures may be implemented in short, medium or long time-scales."

Ad Paragraph 4.13.2 Need for Re-farming in GSM / Mobile bands

"Frequency bands in the sub- GHz range are attractive to operators since it offers better propagation characteristics leading to better coverage at lower cost as well as indoor coverage in comparison to higher frequency bands.

At the same time mobile broadband subscriptions and traffic continue to grow at a rapid rate and is expected to reach over 5 billion devices by 2016, worldwide. This is mainly due to a shift towards mobile-broadband enabled smart phones over voice centric phones in the mass market coupled with a rapid declining price for the same. However, in order to provide a good quality of mobile broadband service requires better network quality. This can be achieved either through:

- *Enhancements in technology (MIMO, Adaptive techniques etc) or.*
- *Additional spectrum dedicated to mobile broadband either via new carriers or new bands.*

This trend also leads to the phenomenon that as a larger number of users migrate to smart-phones the incumbent 'voice only' bands i.e. GSM 900 and 1800 MHz in this case will have spectrum which is being inefficiently utilized (due to fewer users).

However, as these bands have been allocated for a particular application the incumbent licensees are not able to use the same band for other purposes (e.g. mobile broadband)

At the same time, it is important that the spectrum being allocated/ dedicated have as wide a regional footprint as possible – this will drive down device costs due to economies of scale. The legacy GSM bands at 900 MHz and 1800 MHz fall into this category. For e.g. the GSM 1800 MHz band is used by over 350 operators in 148 countries around the world[6].

The result is that in order to be able to better utilize the currently assigned frequencies and maximize the social impact by leveraging economies of scale it may be necessary to consider spectrum re-farming, especially in the heavily used GSM bands.

As mentioned previously in our submission, MTN is of the opinion that with the licence conversion in 2009, that supported a technology neutral approach, no frequency allocation is reserved for a particular technology such as GSM and can be utilized for other purposes such as mobile broadband without requesting the Authority for a change in allocation, as both services are allocated for IMT services.

It is only when the application of assigned radio frequency spectrum is fundamentally different from how it allocation was made (for example band allocated for IMT services now being used for terrestrial backhaul or fixed links, should the Authority exercise the powers of oversight.

In summation re-farming is an exercise adopted by the licensed operators in order to enhance and evolve their networks in an effective and efficient manner; the Authority should only involve themselves as a last resort.

[6] Delivering the best mobile broadband experience: the 1800MHz spectrum ‘re-farming’ opportunity (Ericsson)

Ad Paragraph 4.13.3 Points of consideration for GSM / Mobile Bands

"South Africa still retains a large number of its subscriber base for Voice with the current 2G GSM spectrum (900 MHz and 1800 MHz) being fully utilized by the current license holders.

MTN maintains that this statement should rather read *"South Africa still retains a large number of its subscriber base for Voice with the 900 MHz and 1800 MHz being fully assigned by the Authority."*

"Until such a stage is reached that the subscriber base using the existing 2G spectrum is reduced in size to a level where the existing 2G bands have spare capacity, the issue of spectrum re-farming should not be allocated high priority. Instead efforts should be focused towards locating additional bands for IMT as per WRC and SADC proposed spectrum allocation/ utilization."

MTN supports in principle the message contained within this statement. However, as ICASA supports a technology neutral approach, any suggestion that a particular spectrum band is for the exclusive use of a specific technology is untrue. MTN would suggest the following wording to be more appropriate: "*Until such a stage is reached that the subscriber base using the existing 2G services is reduced in size to a level where the existing spectrum bands have spare capacity, the issue of spectrum re-farming by the Authority should not be allocated high priority. Instead efforts should be focused towards locating additional bands for IMT as per WRC and SADC proposed spectrum allocation/ utilization."*

In the previously mentioned document, ITU-R SM.1603-1, relating to Spectrum redeployment as a method of national spectrum management, one of the recommendations made is to increase the levels of spectrum sharing.

MTN suggest that ICASA considers this alternative of spectrum sharing, especially when one considers the need for large blocks of contiguous spectrum in order to provide a superior mobile broadband experience.