

Independent Communications Authority of South Africa
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Attention: Mr Davis Kgosimolao Moshweunyane

By email: dMoshweunyane@icasa.org.za

31 January 2020

Dear Sir

SUBMISSION IN RESPECT OF THE LICENSING PROCESS FOR INTERNATIONAL MOBILE TELECOMMUNICATIONS (“IMT”) SPECTRUM IN RESPECT OF THE PROVISIONING OF MOBILE BROADBAND WIRELESS OPEN ACCESS SERVICES FOR URBAN AND RURAL AREAS USING THE COMPLIMENTARY BANDS IMT700, IMT800, IMT200, IMT2600 and IMT3500 (“THE NOTICE”)

We refer to the above published as Notice 597 of 2019 in Government Gazette no 42820 on 1 November 2019.

Attached please find the written submissions of Liquid Telecom in response to the Notice.

Kindly acknowledge receipt of this submission.

Yours faithfully


Valencia Risaba
Head of Regulatory

Submission
to
The Independent Communications Authority of South Africa
by
Liquid Telecom
on
the licensing process for International Mobile Telecommunications (“IMT”) spectrum,
inviting comments in respect of the provisioning of mobile broadband wireless open
access services for urban and rural areas using the complimentary bands IMT700,
IMT800, IMT2300, IMT2600

INTRODUCTION

1. The Independent Communications Authority of South Africa ("**the Authority**"/"**ICASA**") published a Notice (Government Gazette No. 42820, Notice 597 of 2019) on 1 November 2019 on the licensing process for International Mobile Telecommunications ("**IMT**") spectrum, inviting comments in respect of the provisioning of mobile broadband wireless open access services for urban and rural areas using the complimentary bands IMT700, IMT800, IMT2300, IMT2600 and IMT3500 ("**the Notice** / "**IM**").
2. Liquid Telecommunications South Africa ("**Liquid Telecom**") hereby submits its preliminary response to the Notice. It may no longer require highlighting, but for the sake of accuracy, Liquid Telecom points out that it previously operated under the name "Neotel", which name has been changed to Liquid Telecom after the acquisition of Neotel in 2017. Any historical references to Neotel in this submission are to the same company, however, reflect the situation prior to the change of name.
3. Liquid Telecom extends its appreciation to the Authority for the opportunity to provide comments in regard to the above. Liquid Telecom wishes to participate in any further written or oral hearings and processes that flow from the publication of this IM.
4. Our submission comprises three parts:
 - 4.1. Part A – General Comments
 - 4.2. Part B – Liquid specific concerns
 - 4.3. Part B – Specific Comments on limited aspects of the Notice.

PART A: GENERAL COMMENTS

1. Liquid Telecom has no doubt that the Authority fully appreciates the need to progress and advance the implementation of spectrum policy in South Africa ("**SA**").
2. The continued delays to implementing spectrum policy – and releasing spectrum in SA are well documented in the IM under the "overview" section of the Notice which maps out the litany of regulations, plans, invitations to apply, policy documents and proposed amendments from 2010

to date (no less than 10 in 9 years) which have not yet eventuated into meaningful and effective spectrum assignment necessary to advance the policy goals that these documents articulate.

3. As the IM notes, the focus of all of these documents and policies remains the *“universal provision of broadband services including in particular, ensuring connectivity for public services i.e. education, health and government services”*. Over and above these laudable goals, the Notice links mobile telecommunication technologies as a critical component for achieving the policy goal of “broadband for all citizens” in SA and the release of spectrum as a key area of focus to stimulate investment and revive the economy in the short to medium term.
4. Given the importance and, now absolute, urgency in finalising a framework within which to consider applications and assign spectrum in SA to give effect to the policy goals that are critical for the sustainability of the sector as a whole, we note with concern, the lack of specificity contained in the Notice.
5. While the auction criteria and the stages are relatively clear, the timelines that attend to these are not. This could in effect run into multiple years. One of the most notable issues relates to the much delayed process of broadcasting digital migration. This process has a direct impact on the finalisation of the auction process for a number of reasons, including for example, with respect to IMT700 and IMT800 – where it is evident that licences can only be issued once available which can only occur after digital migration has been completed. As we are all aware, this process is horribly delayed and the switch-off of the analogue signal is yet to be implemented. It is unclear how long that will take. Proposing to auction such critical spectrum, which is totally unusable until the digital dividend is issued, will result in an adverse economic consequence of low bids for those licences especially in light of the delays in finalising the process to date, alternatively bidders only making payment once spectrum is usable. This will significantly impact any new entrants bidding for these frequencies, as their funding sources may not be willing to wait an unspecified period before the spectrum actually becomes available. Further, business cases and funding may change in the face of significant and uncertain delays. Stakeholders will require some timelines and certainty as to the process and the likely timeline which will apply in respect of the successful bidders being able to access these bands. The investment case in these bands for operators is severely impaired without such certainty.

6. In regard to IMT3500, the band has been recognised as a critical 5G band. 5G supports channel sizes ranging from 5 MHz to 100 MHz for bands below 6 GHz and in IMT3500 current 5G New Radio standard provides for channel sizes of 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, and 100 MHz (supported channel bandwidths depend on the Subcarrier Spacing (SCS) in use). It is trite that the full capabilities of 5G are best realised through the wider channel sizes in new 5G bands. Bandwidths of 50 megahertz to 100 megahertz per network will enable high-capacity and low-latency networks ideal for 5G use cases such as enhanced mobile broadband and ultra reliable low latency communications for critical IoT applications. However, it is also trite that insufficient capacity allocations will nullify the usefulness of the band. Efficiency and benefit can only be achieved where 50-100 MHz of contiguous spectrum per operator is made available in this band. The IM does not indicate that such approach will be followed and it suggests that what will eventually be licensed is 1 x 116MHz making it unlikely that each operator will be assigned the required amount of spectrum to effectively deploy 5G. This is made worse by the fact that of the 116 MHz, 16 MHz is currently unusable for 5G.
7. Liquid Telecom has an assignment in this band of 56 MHz while we understand Telkom has an assignment of 28 MHz in IMT3500. Liquid Telecom submits that it would be far more spectrally efficient if the existing assignments are “rounded up” to 60 MHz and 30 MHz respectively. This then leaves 110 MHz capable of assignment. However the 5G NR standard currently does not provide for use of 110 MHz and as such Liquid Telecom submits that the 110 MHz should either be divided into two lots of 50 MHz and 60 MHz respectively; alternatively that the two licensees with existing assignments in IMT3500 should be permitted to participate in a closed bid process for 10 MHz of spectrum and a single lot of 100 MHz be made available.
8. We also respectfully raise concern in regard to the lack of clarity pertaining to the WOAN, its structure and licensing. Extensive submissions have been made in other notice and comment processes (most notably submissions on the Electronic Communications Act (“ECA”) Amendment Bill) and we urge the Department and the Authority to draw on those from stakeholders to help shape this entity accordingly.
9. SA ICT history is littered with failures on well-intended policy interventions that have not achieved their desired outcome – the role of Broadband Infracore and the Underserved Areas Licensees (USALs) are sadly, good examples. The sustainability and viability of a wholesale entity requires clarity. Apart from minimum take off requirements to be imposed on other

operators, it is unclear how this entity will be structured, funded and run and what effect an obligation to provide cost-based pricing to competitors may have on it (and the market). Significant clarity is required on the support this entity will be given and the types of regulatory holidays and benefits (and how they will be implemented and monitored) that will be provided to the WOAN to make it sustainable and of positive impact to the wholesale market.

10. Similar concerns pertain to the minimum 30% national capacity take off requirement from the WOAN: it remains unclear how stakeholders can comment on a minimum take off requirement when there is no WOAN entity in existence, no timelines and no pricing against which to evaluate the impact of the obligation and preparing a business case for entering a competitive auction process. It is not even clear if this obligation relates to 30% of the WOAN's national capacity or of the holders of the new spectrum licences' national capacity requirements and how the collective off-take is to be divided between such licence holders?
11. Moreover, it is unclear that the administrative process referred to by the Authority, for licensing the WOAN will achieve the policy goals that underlie its genesis: namely the promotion of services based (retail) competition and wholesale, non-discriminatory access – both aimed at driving down end user pricing. Without expressing a view on the WOAN as the most effective means to achieve these goals, the time lag implicit in an administrative process suggests that the WOAN may not be operational in sufficient time to have a positive effect on wholesale competition. Already operators such as Liquid Telecom have launched wholesale open access networks using their existing spectrum assignments, while the enquiries into competition in mobile broadband services continue to unfold both at the Competition Commission and the Authority itself. As stated above, and at the risk of repetition, without any further clarity on this entity, it is unclear whether it will in fact be a sustainable, commercially viable entity, even capable of ensuring that the spectrum set aside for it will be effectively utilised by a solid network which still needs to be developed and rolled-out, or that in fact, the spectrum set aside for it will be inefficiently valued and utilised at all.
12. A minimum, the above general comments suggest that the myriad, disparate policy documents and licensing processes – as well as proposed amendments to the ECA need to be aligned and where necessary, given effect to. Essentially, this IM has been issued in a somewhat unclear

policy landscape with multiple proposals for significant change having been made in the last 5 years, but none taken to completion.

13. Equally concerning are the general requests for specific comments pertaining to the legal basis, nature and extent of wireless open access conditions to be imposed on ECNS licensees. Essentially, the Authority should provide some indication of their thinking in this regard to receive comment thereon. There simply is not enough information available to participate meaningfully in a comment process. Moreover, this should be dealt with immediately through the existing regulatory regime proposed by the ECA and does not currently require a separate process flowing from the IM to address it.
14. The IM proposes empowerment obligations in very vague and unspecific terms. These are intended to further promote broad-based black economic empowerment (“B-BBEE”) in addition to what the Radio Frequency Spectrum Regulations prescribe. These further obligations are intended – as with all previous universal service and access efforts – to promote affordability, availability and accessibility.
15. However, it remains impossible, in the absence of parameters on timelines, pricing, delineation of underserved areas and the like, for stakeholders to propose meaningful recommendations on the type, scope, nature and criteria for imposing social obligations on licensees. Also absent is the rationale for why these would need to be imposed in light of the spectrum price paid and the minimum take off capacity requirement from the WOAN, an entity that should be addressing underserved areas by virtue of its genesis.
16. **Accordingly, our general recommendation in regard to the above is for the Authority to reconsider these issues. It is necessary to time and sequence various complementary processes (such as the licensing of the WOAN and the implementation of the Digital Dividend) and to propose parameters and guidance to the sector on the issues and proposals raised for comment in the IM. Regrettably, this suggests further delays as it is our respectful view that the IM must be re-published with sufficient baselines and proposals on all of the above to elicit meaningful comment from stakeholders.**

PART B: LIQUID SPECIFIC COMMENT

17. This part of our submission raises a unique issue specific to Liquid Telecom in respect of the proposed auction in the IMT 800 band. This stems from the Authority’s publication of the Radio Frequency Assignment Plan (published 29 March 2019, in Government Gazette No. 42337, as Notice 165 of 2019)(“RFSAP”).
18. It is well known that Liquid Telecom holds a radio frequency spectrum licence for the use of the International Telecommunications Union (ITU) Region 2 GSM850 MHz spectrum band - the frequency band 824.2 – 848.8 paired with 869.2 – 893.8MHz - to provide electronic communications services and electronic communications network services. Liquid Telecom was allocated 2 x 4.92 = 9.84 MHz in the frequency ranges 827.775 – 832.695 MHz, paired with 872.775 – 877.695 MHz on a non-contiguous basis, licensed as individual channels for particular sites.
19. Liquid Telecom has on more than one occasion, provided the Authority with an extensive history leading up to the granting of its licence and the allocation of spectrum in this band. We do not intend to repeat that history here. However, we make various salient points below:
- 19.1. The GSM850 band is primarily a ITU Region 2 band (with some use in Region 3). It is not used for mobile voice or data services in ITU Region 1 (in which SA falls);
- 19.2. Liquid Telecom is the only non-broadcaster using the 850 MHz band. Both for the purposes of the Digital Dividend and for the subsequent auction of IMT800, Liquid Telecom is required to migrate within the band. However, no provision appears to have been made in the RFSAP for the migration of Liquid Telecoms from the currently used 850 MHz, to suitable spectrum.
- 19.3. Liquid Telecom does however have vested rights to suitable, alternative 800 MHz spectrum. A letter of comfort was issued by the Authority in May 2014 wherein it was stated that “*should there be a migration process, ICASA will take into consideration Neotel’s existing assignment in the 800 MHz band and will migrate Neotel, in the spirit of grandfathering the assignment, to a frequency band, equally suitable*”.
- 19.4. Apart from this letter, we are of the view that: (a) Liquid Telecoms is entitled – post migration – to a spectrum allocation in the 800 MHz band equivalent to what was assigned in its

spectrum licence (equivalent meaning in order to roll out an effective broadband network) (b) ICASA has no basis upon which to reduce the size of Liquid Telecom's current spectrum assignment; and (c) ICASA has no basis upon which to withdraw Liquid Telecom's spectrum licence, provided it has and does comply with its licence conditions.

- 19.5. The issues we raise here are not new to the Authority. They have been raised previously in various submissions made to ICASA since 2010 in regard to spectrum regulations, policy and assignment. They remain to date, unaddressed.
- 19.6. It is not our intention here to traverse all of these issues again. However, the IM and the proposed auction is a very clear indication of action that may directly affect Liquid telecom's vested rights in the spectrum. Accordingly, we are respectfully of the view that these should be highlighted below as they may have a direct impact ultimately on the outcome of an auction in that band.
- 19.7. **Simply put, our main concern with the IM is that it remains entirely unclear to Liquid Telecom how its rights as a licence holder in this band will be affected. Moreover, Liquid Telecom is concerned that it should be expected to enter an auction and pay for spectrum it has already had assigned to it.**

These and other concerns are summarised below:

- 19.7.1. Liquid Telecom has to migrate in-band. We estimate that it will take approximately 18-24 months to migrate. Due to the manner in which spectrum was assigned and the history of our licensing, this time period is needed to manage this process on a region by region basis. Access to both the existing and the future spectrum bands will be required for the full duration (as a form of "dual illumination" period) and there will be a significant cost coupled with the risk of significant customer churn.
- 19.7.2 Should Liquid Telecom move to LTE as proposed by the RFSAP, we are of the view that it will not be cost-effective to deploy LTE with the limited amount of spectrum proposed. Certain costs are fixed, irrespective of the amount of spectrum available, specifically civil works, power and mast construction or rental. Revenues will be far lower than those of competitors with greater LTE spectrum resources, as Liquid Telecom will only be able to offer a "budget" services with very limited throughput or higher throughput to a very small number of subscribers with only 2 x 5 MHz of spectrum; while the costs will be substantially the same as those of Liquid Telecom's competitors. Given that the potential interference issues are not resolved by the migration proposed in the RFSAP, spectrum may be limited in some locations to as little as 2 x 3.75 MHz. This is exacerbated by the fact that Liquid

Telecom has been unable to identify suitable radio equipment with which to carrier aggregate its existing assignments, as a direct result of the fact that the 850 MHz assignment is not a standard Region 1 assignment and carrier aggregation between Region 1 and Region 2 radio equipment requires bespoke development. Similarly, customer equipment which can aggregate Region 1 and region 2 assignments on the device tend to be more expensive and not affordable with a “budget” service. Obviously bespoke equipment greatly increases the cost of deploying the network, as well as raising the costs of ongoing expansion and maintenance.

- 19.7.3. We are of the view that a Liquid Telecom LTE service will not be able to compete effectively with competitors that deploy LTE using IMT800 or IMT700 spectrum and Liquid Telecom will be at a major disadvantage, especially as the IM contemplates assignments of a minimum of 2 x 10 MHz. The capacity-to-cost ratio is simply unfavourable with the small amount of spectrum – 2 x 5 MHz or less (considering the suggestion to reserve the portion 870-871.25 MHz as a guard band) and with the possibility of interference at the bottom end of the top leg, there is the risk that the usable spectrum could be further reduced.
- 19.7.4. Liquid Telecom will simply not have enough spectrum. An amount of 2 x 5 MHz is not an adequate amount of spectrum for providing high-speed broadband services, especially mobile services and/or services in urban areas.
- 19.7.5. Moreover, as the 850 MHz band is not yet clear, there remains harmful interference problems with several makes of motor vehicles, including BMW and Volvo. Keyless entry, ignition and alarm systems of these vehicles are interfered with if they come in close proximity of Liquid Telecom’s base stations. There has been no technical mechanism available to Liquid Telecom to mitigate these issues. Liquid Telecom is of the view that it will not simply be a matter of shutting down Short Range Devices (“SRDs”), should they interfere with Liquid Telecom’s network. SRDs, although they are not classified as a radio service have a right to exist in the bands designated to it, provided they meet the technical requirements. In addition, many SRDs are either mobile or portable and may appear at different parts of the network and in different concentrations, from time to time.
- 19.7.6. In addition, reserving the 850 MHz band for LTE removes the innovation opportunity presented in the rest of Region 1 for the deployment of licence exempt low output wide area networks. These low output wide area networks are used expensively for sensor and other IoT devices and present a massive opportunity for transformation of the way people gather information. Liquid Telecom is of the view that it would be unfortunate if its assignment stifles

this potential innovation – due to the inevitable interference issues. As such, it would be more appropriate to follow the Region 1 trends and move Liquid Telecom's assignment to the IMT800 band.

- 19.7.7. Finally, this 850 MHz band is not harmonised with SADC spectrum policy and assignment. Given the history of why exceptions were made to licence Liquid Telecom initially in this band, the fact remains that the 850 MHz band is fundamentally an ITU Region 2 frequency band and a lesser extent an ITU Region 3 frequency band. It is not a band that has any use in ITU Region 1. Other than a few African countries, most of which have abandoned or are in the process of abandoning the use of this spectrum, we are not aware of any other countries in ITU Region 1 that intend using this band for IMT or broadband services. The band is also not provided for in the SADC Frequency Allocation Plan. It's therefore not a band that forms part of SADC's regional harmonisation.

20. Liquid Telecom has made multiple submissions in regard to its unique issues in the 850 MHz band. We arise them here again in summary form as these cannot continue unaddressed as plans to auction that spectrum are being made. We respectfully urge the Authority to consider this issue in its planning and engage with us accordingly to find an amicable resolution.

PART C: SPECIFIC COMMENTS

Notwithstanding our comments above regarding the vagueness or lack of detail contained in the IM, this section sets out our specific comments, where applicable to the issues raised.

21. **Proposed spectrum for award** (refer paragraph 5 of Notice, page 17 -27)
- 21.1. Of the 5 options proposed, Liquid Telecom submits that Option 4 is the preferable option for the following reasons:-
- 21.1.1 2600 MHz is intended for assignment in TDD, which is a technically progressive approach;
 - 21.1.2 More lots of 800 Mhz spectrum are made available, 3 lots each 2x10MHz;
 - 21.1.3 The focus on possible assignments in the 800 MHz band rather than the 700 MHz band is beneficial as for the deployment of LTE services and the 800 MHz band has

a more advanced and deployed LTE ecosystem worldwide , while there are fewer 700 MHz deployments globally (although still significant) and this band is targeted for 5G.

22. Overview of spectrum obligations

- 22.1. Prior to addressing the arguably vague proposed spectrum obligations, Liquid Telecom wishes to raise a conceptual issue we have raised before regarding the overall approach by both the Department and the Authority to the issue of obligations to be assigned to operators as part of licensing processes. In this regard, our comments that follow are intended to read as relevant to also to section 6.5 of the Notice (Social Obligations for Industry).
- 22.2. There is no disagreement with the objects of the ECA with regard to universal service and access. There is no question as to the importance of the social goals that underpin the policy and regulation which seeks to give effect to the realization of the policy goals on universal service and access. In fact, the failure to attain these goals over the last two decades has increased the urgency to address them, in light of the continued dynamic evolution of the sector and technology: the gap is getting wider.
- 22.3. As recently as January 2020, the ITU UNESCO Broadband Commission for Sustainable Development published its intention to examine new financing models that would help accelerate ‘meaningful universal connectivity’ noting that far more targeted efforts are needed to lower the cost of broadband, as well as innovative policies to finance the rollout of broadband infrastructure to unconnected populations.
- 22.4. New ideas for implementation in the access debates are essential. There is no reason South Africa cannot change its approach to a more relevant one. The Broadband Commission echoed SA’s many policy documents that suggest a clear shift from the perception of ‘broadband as a luxury’ to ‘broadband a basic infrastructure’, and in certain countries, even broadband as a human right. This however cannot be achieved if as a country, we do not explore new incentives and financing solutions to create environments that are conducive to investment in the sector.
- 22.5. Accordingly, Liquid Telecom is of the view that the current thinking on allocating obligations and Universal Service Obligations (“USO’s”) on a per operator basis, is self-defeatist for the sector and no longer a relevant way of assigning obligations to address important social goals.

- 22.6. The per operator basis harks to a different regulatory epoch (the late 1990's) in which a few operators were given the privilege of having a licence in a concentrated market (defined as fewer than 5 operators) and for that privilege, paid a licence entry fee and took on service obligations. This was so, as in a concentrated market, without competition, the underserved will never be an addressable market and required policy directed at creating access in such areas.
- 22.7. The policy goal remains as relevant as ever, but the thinking and mode of trying to give effect to universal service ideals in the same manner, is not, nor cannot be relevant.
- 22.8. In this regard, Liquid Telecom proposes an entire overhaul to the thinking, away from the mode of regulating in monopoly/duopoly/concentrated markets. Moreover, despite the market changes, even previously, the sector has never had a successful result of universal service delivery on the current model.
- 22.9. Liquid Telecom proposes that The Department as policy custodian and the Authority as implementer of such policy, should be considering a "Contribution Regime" applicable elsewhere in the world. By this, operators should (and in fact already do) contribute to a Fund and the Fund is administered by an agency (as is the case in South Africa) or a policy desk within government and projects are funded for roll-out on a bidder basis for under-served areas. The capex comes from the fund and all operators contribute on an equitable basis, relative to their size and turnover. This model would allow a rational market response and a rational allocation of resources to fund infrastructure projects. South Africa has the model in place but has not utilized it.
- 22.10. The predictive, arguably premature response that under-serviced areas will still remain under-served if specific roll-out obligations are not assigned, is neither economically rational nor proven as the model has never been tested yet has had great success in many other countries. It is also a model in line with an increasingly liberalized (and ultimately de-regulating) framework.
- 22.11. Liquid Telecom firmly believes that a contribution regime should be established for the purpose of funding broadband roll-out (along with the funds currently within the USAF) and should be released for "bid-basis" projects in designated areas and for needy beneficiaries and the project management of the build should be in concert with USAASA. The roll-out plan for the country should be conceptualized by USAASA and multiple projects in which operators tender for the project should be the basis of the model – based on the very funds accrued

through the application of the Universal Service and Access “contribution” required by all licensees on an equitable basis.

22.12. *Uplink of 15 Mbit/s and downlink of 30Mbit/s to 100% of population of SA*

Liquid Telecom supports this obligation in so far as it relates to spectrum acquired through this auction licensing process.

22.13. *Required to roll out 97% of population in all identified underserved areas before rolling out in urban areas*

As our comments stated above, this requirement would need to be implemented only on the basis of a thorough review and understanding of the economics of roll-out. First, “underserved areas” itself is a term that the SA policy and regulatory ecosystem has not yet managed to adequately define. Second, it ignores the urban poor who are overlooked if such definitions do not allow for other factors apart from population density and third, it ignored the reality of cross-subsidisation between economically viable areas identified for roll out and those areas that will ultimately be defined as underserved but may not (in fact are unlikely to be) sustainable for roll-out on their own. In addition, this figure fails to account for the different propagation characteristics of the various frequency bands and their suitability and cost of deploying services in urban and rural areas as well as the influence of SA’s geographic diversity will have on roll-out. Finally, the 97% threshold seems random and should be reconsidered, taking into account the above comments.

Consideration should also be given to the high cost of rolling out infrastructure, perpetuated by, inter alia, exorbitant costs of wayleaves and the lack of co-operation by municipalities. This renders the obligation a commercially unsustainable one that may adversely impact on the cost to communicate.

22.14. *Within max 3 years must provide service to all identified underserved areas – failure = serious breach of license conditions*

We re-iterate our previous comments here in respect of vagueness and timelines. We also re-iterate the concern with the lack of an agreed definition of an underserved area. Moreover, it is unclear what consequence would flow from the failure to meet this condition. If this remains so, it serves as a clear deterrent to investment and auction participation. Further clarity is required to make meaningful input.

We note our previous comment regarding dependencies, in particular the dependency on the completion of the digital migration process, necessary before roll out of networks can commence.

22.15. *Must provide open access to a minimum of 3 MVNOs (MVNO must have 51% HDI ownership)*

Liquid Telecom welcomes services based competition as a mechanism to lower retail pricing as well the objective of real and sustainable transformation in the industry. Liquid Telecom considers MVNOs an important way of achieving both objectives. At the same time, Liquid Telecom notes this obligation is rather vague and would appreciate further clarity before commenting further, specifically regarding (1) the definition of MVNOs, (2) whether these MVNOs must be new licensees or may existing licensees be included, in which case – must the licensee relinquish and actual network it deploys, (3) how will equity changes in the MVNO be dealt with to ensure that shareholders are able to unlock value in their investment and specifically will the Authority follow the “once empowered always empowered” approach as followed in certain other industries. .

22.16. *Minimum of 30% national capacity must be procured from the WOAN collectively for at least a period of 5 years*

This obligation cannot be capable of meaningful comment in the absence of an understanding as to how and when the WOAN will be licensed, how it will be a viable entity and when it will be operational, amongst others. The absence of any real pricing indicators also renders further comment impossible at present.

Moreover, how is the 30% collective capacity to be determined by operator and how will it be determined? How many operators will take capacity or be accommodated and on what threshold each? What if one operator alone seeks all 30% or two seek 15% each? Essentially, Liquid Telecom supports the concept in theory but to be a viable IM, far more detail is required in order to make meaningful comment. Obviously such detail is essential to allow a prospective bidder to evaluate the obligations to be imposed on it and should be explicitly set out in the IM. As per our comments above, we believe that this is exactly the type of information that needs to be more specifically set out in order to elicit detailed and effective comment from the sector.

Liquid Telecom urges the Authority to consider our previous points in regard to the sequencing of the licensing of the WOAN and the spectrum intended here for release to the sector.

- 22.17. *Holders of licenses in Lots B to E must provide wholesale access to passive and active infrastructure to holder of Lot A (WOAN) – existing licenses will be amended to allow WOAN to benefit from national roaming on its network on a cost-orientated and non-discriminatory basis.*

Liquid Telecom notes this obligation and supports the concept of roaming on a cost-orientated and non-discriminatory basis. At the same time access to passive and active infrastructure, may require leasing of facilities. As such, this may require review of existing facilities leasing regulations in respect of existing licensees and their infrastructure.

Liquid Telecom recommends that the proposed obligations apply to holders of new spectrum licences, while the facilities leasing regulations are reviewed.

- 22.18. *Will be subject to US&A obligations as determined by the Authority*

We refer you to our general comments above in regard to “spectrum obligations”. We also note that there is a substantial lack clarity regarding future possible policy and legislative changes and how these may affect the universal service and access regime in SA going forward. Liquid Telecom submits that these are not yet finalised in draft amendments or policy directions should be formalised before the sector is able to comment broadly on obligations to be proposed or determined by the Authority.

Auction stages (refer paragraph 7 - 8 of Notice, page 30 - 32)

- 22.19. Qualification stage

Liquid Telecom notes the requirements for the qualification stage and supports its inclusion. We have no further comment in this regard.

23. Specific questions the Authority requested comments on

- 23.1. *Make representation on the factors and / or principles that the Authority should consider in determining the reserve price applicable to each LOT. (p18)*

Our concerns here is simply one of vagueness. It is unclear whether the Authority has undertaken any pricing studies and valuations? This is critical if new entrant competition is to be achieved. If lots are priced too high, smaller and new entrants will be prohibited from participating (and there are various debates to be had on other capital raising challenges which in any event may make competition from new entrants unfeasible). Equally, if priced too high, incumbent operators who may be able to participate will be unlikely to reduce retail pricing meaningfully if successful.

23.2. *Make representation on the factors and considerations that can inform the Authority's formulation of RFS caps. (p18)*

Spectrum caps are a contentious issue and have been shown elsewhere in the world to have the unintended consequence of inhibiting operators from achieving high-speed broadband performance. We accordingly urge the Authority, in light of the vision of SA Connect, to consider caps in the correct manner and to propose parameters upon which industry can comment meaningfully.

The very general request for input on both pricing and caps is concerning both in respect of the fact that these issues are within the remit of the Authority and also indicate the likelihood of further lengthy delays to the finalisation of this process.

23.3. *Comments on the packaging of spectrum - Options 1 to 5. (p18 -25)*

Option 1

Option 1

- Lot A – reserved for WOAN: 2×25MHz (FDD) 800MHz, 2×20MHz (FDD) 2600MHz
- Incumbent (assigned): 20MHz (TDD) 2600MHz
- Lot B, C and D – industry: 2×10MHz (FDD) 700MHz, 2×10MHz (FDD) 2600MHz
- Lot E – industry: 2×20MHz (TDD) in 2600MHz

- This option provides for the allocation of a considerable amount of spectrum to the WOAN (2 x 25 MHz + 2 x 20 MHz + 25 MHz) a total of 115 MHz of spectrum for an operator with no commercial model as yet;
- There is no 800 MHz spectrum made available to the industry;
- The 2600 MHz band is allocated for use in both FDD and TDD configurations. This creates a potential for significant inefficiency in the co-existence of the two technologies in the same band. Liquid Telecom

submits that the 2600 MHz band should be used assigned as TDD and the incumbent should be migrated to TDD and no new assignments should be made in FDD;

- 700 MHz offered to industry in 3 lots, of 2x10MHz each. This is welcomed, however the 700 MHz technology ecosystem is not as advanced as the 800 MHz ecosystem – which could cause delays in deployment. The size of these lots also makes it clear that a minimum of 2 x 10 MHz is required to offer a competitive commercial service in the sub-gigahertz bands.

and

- There is a notable omission in that Liquid Telecom’s band 5 (2 x ~5 MHz in 850 Mhz) assignment is not reflected or addressed.

Option 2

Option 2

- Lot A – WOAN: 2x20MHz (FDD) 800MHz band, 1x20MHz (TDD) 2600MHz
- Incumbent (assigned): 20MHz (TDD) 2600MHz
- Lot B, C and D – industry: 2x10MHz 700MHz, 50MHz (TDD) 2600MHz
- Future assignment – industry: 2x10MHz (FDD) 800MHz

- The allocation of 80 MHz to the WOAN (2 x 20 MHz in 800 MHz + 40 MHz in 2600MHz) seems more appropriate for a yet to be established operator;
- 2600 MHz is intended for TDD deployment, which is technically most efficient;
- The 700 MHz offering (3 lots, each 2x10MHz) makes it clear that a minimum of 2 x 10 MHz is required to offer a competitive commercial service in the sub-gigahertz bands;
- There is the possibility of a future 2 x 10MHz in the 800 MHz band being made available. Liquid Telecom believes this will be ideal for the migration of its existing 850 MHz assignment.
- There is no reference to Liquid Telecom’s band 5 (2 x ~5 MHz in 850 Mhz) assignment. There is significant likelihood of interference between Liquid Telecom’s assignment and the potential future assignment (if this possible

future assignment is not intended for Liquid Telecom), as there is only a 2 MHz guard band (upload to upload).

Option 3

Option 3

- Lot A – WOAN: 2×20MHz (FDD) 800MHz, 40MHz (TDD) 2600MHz
- Lot B, C and D – industry: 2×10MHz 700MHz, 40MHz (TDD) 2600MHz
- Lot E – industry: 2×10MHz (FDD) 800MHz, 10MHz 2600MHz
- In-band migration: 20MHz 2600MHz (incumbent)

- The allocation of 80 MHz to the WOAN (2 x 20 MHz in 800 MHz + 40 MHz in 2600MHz) seems more appropriate for a yet to be established operator; The availability of 2 x 10 MHz is welcome, however there is no reference to Liquid Telecom's band 5 (2 x ~5 MHz in 850 Mhz) assignment. There is also significant likelihood of interference between Liquid Telecom's assignment and the suggested LOT E assignment, as there is only a 2 MHz guard band (upload to upload);

Liquid Telecom agrees with moving the incumbent operator in the 2600 MHz band and allocating the band for TDD deployment, which is technically most efficient.

Option 4

Option 4

- Lot A – WOAN: 2×20MHz (FDD) 800MHz, 40MHz (TDD) 2600MHz
- Lot B, C and D – industry: 2×10MHz (FDD) 800MHz, 40MHz (TDD) 2600MHz
- Future assignment: 2×10MHz (FDD) 700MHz, 10MHz 2600MHz

- The allocation of 80 MHz to the WOAN (2 x 20 MHz in 700 MHz + 40 MHz in 2600MHz) seems more appropriate for a yet to be established operator;
- 800 MHz is offered to industry in 3 lots, each 2 x 10MHz. However, there is no reference to Liquid Telecom's band 5 (2 x ~5 MHz in 850 Mhz)

assignment. There is also significant likelihood of interference between Liquid Telecom's assignment and the suggested LOT B assignment, as there is only a 2 MHz guard band (upload to upload). It also makes it clear that a minimum of 2 x 10 MHz is required to offer a competitive commercial service in the 800 MHz band.

Option 5

Option 5

- Lot A - WOAN, 2x10MHz (FDD) 800MHz, 2x10MHz (FDD) 800MHz, 40MHz (TDD) 2600MHz
- Lot B - industry: 2x10MHz (FDD) 800MHz, 40MHz (TDD) 2600MHz
- Lot C and D - industry: 2x10MHz (FDD) 700MHz, 40MHz (TDD) 2600MHz
- Lot E - industry: 2x10MHz (FDD) 800MHz, 10MHz 2600MHz
- In-band migration: 20MHz 2600MHz (incumbent)

- The allocation of 80 MHz to the WOAN (2 x 10 MHz in 700 MHz + 2 x 10 in 800MHz + 40 in 2600MHz) seems more appropriate for a yet to be established operator;
- 2 lots of 2 x 10MHz in 700 MHz and 1 lot of 2 x 10 MHz in 800 MHz available to the industry is welcomed. However, there is no reference to Liquid Telecom's band 5 (2 x ~5 MHz in 850 Mhz) assignment. There is also significant likelihood of interference between Liquid Telecom's assignment and the suggested LOT E assignment, as there is only a 2 MHz guard band (upload to upload). It also makes it clear that a minimum of 2 x 10 MHz is required to offer a competitive commercial service in the 800 MHz band.

24. General Comments

24.1. 2600 MHz band should be released with a TDD band plan (3GPP LTE band 41) and not FDD. A TDD plan results in a more efficient use of the band and allows to manage the uplink/downlink traffic asymmetry.

24.2. The 700 MHz band and the 800 MHz band can be considered “coverage” bands. Both bands:-

- have similar good propagation characteristics (unlike bands higher up in frequency),
- have an FDD band plan, and
- have block sizes of 2x10 MHz or 2x20 MHz per licence. However, the two bands are not perfect substitutes: 800 MHz band is widely in use worldwide with LTE technology, whereas there are less deployments in 700 MHz globally (although still significant) and this band is targeted for 5G.
- NO spectrum block in the bands under consideration should be held for future assignment. There is a very strong demand for additional spectrum in SA, and that these bands are widely supported by both network and handsets.

25. *Make representation with regard to the criteria to be used for identification of underserved areas to be prioritised in roll out. (p27)*

25.1. The history of defining under-served areas in SA and within our regulatory regime remains opaque and as such, it is difficult to make any meaningful comment on the criteria to be used for identifying these areas to be prioritised for roll-out. The measures used in the past including for example, “tele density” and “population density” have not worked and deny the reality of a peri-urban and urban poor who risk being overlooked again if previous measures are used. With very little economic incentive to roll-out to underserved areas where the economics do not result in purchasing power for bandwidth, industry is not well placed to determine the criteria absent an incentive system that will make such roll-out viable and sustainable. This cannot be done absent government assistance.

Nor can it be done absent regulations governing municipalities in approving wayleaves and other authorisations. It further cannot be done in the absence of arguably the most urgent policy necessary in the sector currently, the regulations pertaining to rapid deployment of

infrastructure which itself has set the sector back a decade and by its absence, has denied services to the urban poor.

Linked to the above, on the spectrum proposed in the IM for auction, the prioritisation of roll-out to underserved areas as a focus may be counter-productive. Operators will need to roll out on the basis of business cases that may require urban roll out first or at least simultaneously where the economics allow for it. Failure to do so will prevent the necessary cross-subsidisation that may be required to make less dense, underserved areas viable roll out areas. In any event, we reiterate our previous submissions that the entire conceptual approach to roll-out obligations needs to be re-thought and re-crafted for relevance in a non-concentrated market. We expand further on that elsewhere in this submission.

26. *Make representations on the legal basis, nature and extent of wireless open access conditions to be imposed on ECNS licensees. (p28)*

As indicated previously, Liquid Telecom is generally supportive of wireless open access conditions being set out for ECNS licensees; however these must be formulated following an adequate regulatory process to ensure they are reasonable, equitable and procedurally compliant.

27. *Make recommendations and proposal on the type, scope, nature, criteria of social obligations that can be imposed on licensees. (p31)*

We draw your attention to our view in respect of universal service and access obligations set out above. We do also point out that the current social obligations already applicable to operators – such as computer labs and equipment - have not taken as a whole, achieved the policy goal intended or been monitored effectively. Liquid telecom submits that the lessons to be learned from the lack of success with existing social obligations, should be considered prior to implementing new ones, particularly with regard to how they will be maintained measured and monitored.

CONCLUSION

We submit that various critical deliberations and considerations still need to be made with regard to the matters canvassed in this submission. Liquid Telecom SA appreciates the opportunity to make this submission and confirm our willingness to participate in any further engagements herein.