

31 January 2020

ATTENTION: MR. DAVIS KGOSIMOLAO MOSHWEUNYANE

The Independent Communications Authority of South Africa
350 Witch-Hazel Avenue
Eco Point Office Park
Eco Park
Centurion
Gauteng

Dear Sir

RE: WRITTEN REPRESENTATION ON THE NOTICE ON 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, IMT2300, IMT2600 AND IMT3500

Altron Nexus Solutions, as a longstanding industry member and trusted supplier to multiple government departments, appreciate the opportunity to provide our views in respect of the proposed plans for IMT spectrum allocation as published in GG42820, dated 1 November 2019.

Initially we reference, in summary, critical points of the National Integrated ICT Policy White Paper (Chapter 9), published 28 September 2016 as follows:

OPEN ACCESS (9.1)

- We fully support the Principles of Open Access as outlined. (9.1.5)
- Wireless Open Access Network ("WOAN") (9.1.6)
 - The Wireless OAN will be a public-private sector owned and managed consortium, and will consist of entities that are interested in participating.
 - Government Support in the form of: (9.1.6)
 - Reduced or waived spectrum fees.
 - Access to public buildings and other type of public infrastructure, e.g. poles, towers, ducts, rights of way, at reduced costs through government facilitation.
 - Allocation of some funds from the fund responsible for rural and under-serviced areas.

RADIO FREQUENCY SPECTRUM POLICY (9.2)

- Challenges (9.2.1.1)
 - "... sector-specific agencies often, as a matter of practical necessity and in the course of doing their business, permit the spectrum to be used by third parties under their control."
- Goals (9.2.3)
 - Promote effective and efficient management of spectrum.
 - Contribute to the promotion of National interests and to development and diversity.
 - Reduce bureaucracy and streamline processes.
 - Support the attainment of National broadband targets.
 - Provide clarity on the treatment of spectrum in instances where demand exceeds supply.
 - Set aside spectrum for use on an open access basis.
 - Support the provision of emergency services, safety and security and sector specific operations to all South Africans.
- Facilitating an open access spectrum licensing regime (9.2.5.4)
 - The principle to minimise / reduce duplication and encourage efficiency and sharing.
- Spectrum for sector specific use and for services that meet clearly defined public interest goals (9.2.5.5)
 - Government will continue to provide for the allocation of spectrum for safety of life services, sector-specific use, security services, and for scientific research. Emanating from its allocation function, the Ministry will ensure that sufficient sector-specific spectrum and spectrum for services that meet clearly defined public interest goals (including that used for fire and ambulance services for PPDR) is secured and protected and, as far as is practically possible, harmonised internationally and/or regionally. It will furthermore ensure that there is coordination in assignment activities across various sectors.

RAPID DEPLOYMENT POLICY (9.3)

- Rapid deployment refers to the process of gaining access to and using property, including buildings and land such as waterways, roads, railways, footpaths and tunnels, to deploy electronic communications networks.
 - Objectives (9.3.2)
 - Promote strong intergovernmental relations
 - Enable deployment in an efficient, cost-effective, environmentally responsible manner
 - Avoid unnecessary duplication of infrastructure

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- Promote and facilitate a consistent, simple and coordinated approach among government departments and agencies to formulate, process and determine applications for planning approvals, permits and other assents for deployment.
- Promote the sharing of infrastructure
- Goals (9.3.3)
 - Provide a framework for ECNS licensees and landowners to work together for the public benefit while upholding the right of ECNS licensees to access property in order to deploy their networks.
 - Simplifies, streamlines, co-ordinates and ultimately accelerates the infrastructure deployment process to enable the sustainable and environmentally sound deployment of critical broadband infrastructure.
- Interventions – Application of the principles of reasonableness and due caution (9.3.5.1)
 - Government is committed to increasing access to ICT's and in particular broadband, in light of the central role of broadband in driving a digital society and meeting National socio-economic objectives and goals. As such, ICT infrastructure is considered critical infrastructure.

Committees Defined:

- National Radio Frequency Planning Committee
- Rapid Deployment Steering Committee

Based on the above key points identified, Altron Nexus Solutions would like to state the following for due consideration and implementation within the defined Frequency Spectrum Licensing Process.

One key point ahead of this, and as an overriding statement, it must be noted from the outset that, at this stage, no provision has been made for the White Paper defined allocation of sufficient spectrum being secured and protected for services that meet clearly defined public interest goals including; emergency services, safety and security and sector specific operations. We believe that it is imperative that this allocation be defined from the outset to avoid a situation where a compromise allocation results at a later date. To this end our recommendation would be that this licensing of this public interest spectrum assignment commences simultaneously with that of the WOAN and Industry.

OPEN ACCESS

Government WOAN Ownership Participation

Without detracting from the need defined above for public interest spectrum, we consider that the Notice on the Licensing Process for IMT places too little emphasis upon the White Paper definition of the WOAN being public-private sector owned. Government has many diverse responsibilities, the obvious being the service delivery facilitation of Public Protection and Disaster Relief (PPDR), emergency services, safety and security. Equally however, the responsibilities of basic service delivery also apply. These include provision of education, electricity, water, sanitation, transport etc. Government service delivery in its entirety should be incorporated under a single broadband spectrum banner, but with the ability for priority to be given to emergency, safety and security services. Additionally, this will be further enhanced if the definition of government (all three tiers) should also incorporate State Owned Entities i.e. Eskom, Transnet, PRASA, ACSA, SAA, Sentech, BBI, SACAA etc. The reality of the current transformation resulting from the 4th Industrial Revolution (“4IR”) is equally critical to government service delivery as it is to the building of a knowledge economy and other socio-economic benefits. It is for this reason and the further reasoning below, that we suggest that the Public (Government) sector needs to play a more active role in the WOAN. In line with the Department Of Telecommunications & Postal Services (DTPS) Policy Direction, the WOAN may include public entities as shareholders provided that the WOAN may not be a public entity, under the Public Finance Management Act 1999 (Act No. 1 of 1999).

The fact of disparities of current broadband coverage between urban and rural access raises a further commonality. It is government’s policy that broadband access of equal quality be available across the entire country with no discrimination between urban and rural. It is recognised that this is a common need to that of government themselves, from a perspective of the abovementioned service delivery, rural coverage is equally critical. Hence government’s broadband equality policy and their broadband needs must be aligned. In truth a national government broadband network for the purpose of service delivery will take considerably longer than the proposed role out of the WOAN and will also not meet the goals of preventing duplication and promoting efficiency. This is not to say that from a security perspective that a government private network deployment in ‘hotspot’ areas is unnecessary, but the access and participation in the WOAN should be seen as being complimentary and attainable in a much reduced timeframe. By ‘hotspot’, we refer predominantly to areas requiring the busiest safety and healthcare needs.

Technology development is increasing at an exponential rate. 4G currently receives very little developmental focus as this is now mostly directed at 5G. For government and industry to maintain pace with these developments nationally, shared infrastructure can be the only

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solution. This is not a situation isolated to South Africa, but is in fact taking place across the world. British Public Safety are implementing the ESN (Emergency Services Network) and in the United States the Firstnet system will provide a similar wireless broadband service, both of these are also commercially operated. The difference between these and what is needed locally lies in the fact that utilities locally are mainly government operated whereas the examples depict areas where the utilities are industry operated. Consequently our utilities should be included under the WOAN ownership / shareholding / MVNO policy.

As a core participant (shareholder & MVNO & User), government would effectively provide a meaningful contribution towards the success of the WOAN and through their participation further justify the reduced or waived spectrum fees, benefiting also the government's wider service delivery target market. Capital contributions would obviously be more complicated but other means, including as a basic input the service provision costs, should be investigated and applied.

RADIO FREQUENCY SPECTRUM POLICY

WOAN Spectrum Application

Spectrum use by third parties has been benefiting Government service delivery for a number of years, supporting inter-agency inter-operability and efficiencies of both spectrum and infrastructure investment, although not universally. The need for this will only increase in the 4IR era where 'Safe City' capabilities need to be introduced. Inter-operability and shared data resources form the pillars of a Safe City / Country.

Broadband national coverage communication for public interest goals, as described generically above as 'service delivery', can be met on the WOAN through the implementation of technology. 4G or (Long Term Evolution) LTE, the first internationally adopted communication technology, has been developed with a principle of satisfying all potential user needs. Co-ordination of needs has been conducted by the group known as 3GPP (Third Generation Partnership Project). Obviously their initial specifications catered for the progressive needs of the commercial user. Of specific relevance, however, are the 3GPP Release 13, 14 and 15 standards. Embodied within Releases 13 and 14 are the Mission Critical Functionalities i.e. those that equate to the features and functionality of existing Mission Critical technologies like (Terrestrial Trunked Radio) TETRA, but with more features and functionality. Broadband adds to the capability of Mission Critical Voice (MCPTT – Release 13) also Mission Critical Video (MCVideo – Release 14) and Mission Critical Data (MCData – Release 14). As a WOAN participant (Shareholder & MVNO & User), government will be in a position to ensure that these release functionalities and the needed reliability provisions are included and provide above all, priority of access in emergency situations.

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Release 15 has now also incorporated the needs of the rail operator, this solution will supercede GSM-R, even in Europe where the largest deployment can be found. These standards are implemented by all recognised manufacturers. Work has also already commenced to transport these Mission Critical features into 5G.

The way forward is not restricted to a WOAN / Private broadband only policy for government communications. In conjunction with private / public LTE, government can and should continue utilising existing digital infrastructure. Another technological advancement is the increasing availability of Gateways which will enable the transparent interconnection between technologies such as TETRA with LTE. In essence this will allow an LTE enabled user to communicate directly with a TETRA user and vice versa, without any intervention or even knowledge that the other is using a different technology. Current pricing of user devices clearly indicates a significant cost saving for TETRA devices when compared to Mission Critical LTE devices. Broadband is needed for service delivery, but not necessarily by all users immediately.

Security will always remain a primary concern of especially certain government departments. The fact is that currently government, through multiple agencies, operate on the commercial networks with little or no protection. As a direct participant / shareholder, government will be in a far stronger position to ensure that Mission Critical security measures are adhered to.

RAPID DEPLOY

Government Contributions

Outside of the two dominant cellular operators, government collectively has probably the largest inventory of Radio Frequency (RF) high sites in the country. In rural areas it is likely that they even exceed that of the operators. Furthermore, government also has across an array of agencies, a significant deployment of broadband fibre infrastructure. Collectively, if properly co-ordinated, these can provide significant cost saving benefits to the WOAN and this should be seen as at least a portion of government's 'shareholding' commitment.

A further contribution could be seen from a perspective of provision of security. Vandalism is probably the single highest threat to the success of the WOAN. In this current age, broadband sites must be seen as the broadcast sites of the future. Access to current affairs and important government announcements will typically be found more promptly through a 'social media' application than through the traditional Sentech systems. Historically, Sentech transmit infrastructure held the status of being National Key Points. Moving forward, it will be equally important that broadband infrastructure receives similar protection. If nothing else the

higher penalties attributable under this policy will certainly provide an enhanced deterrent against vandalism.

Government agencies will also retain in-house technical capabilities, especially in remote areas where these services could be provided in support of the WOAN.

COMMITTEES

The National Radio Frequency Steering Committee and the Rapid Deployment Steering Committee formulation, co-ordination and success will be a significant challenge if all tiers of Government and SOE's are participants. It is suggested that, once WOAN participation has been decided upon, a tender based contract, be issued by National Treasury to an organisation which would manage and facilitate government technical engineering support, bulk WOAN internet bandwidth provisioning, distributed costing apportionment, administration and general coordination, especially, but not limited to, the Deployment Committee. This expanded to also include WOAN operations, user provisioning, performance reporting etc. Operating a 'Commercial' network is not core business of government.

DIRECT COMMENTS AGAINST THE LICENSING PROCESS FOR IMT SPECTRUM

Information Memorandum Opening Statement

Purpose and submission detail is noted.

Our submission does not require any aspect to be treated as confidential.

1. **Overview**
Noted – No Comment
2. **Introduction**
Noted
- 2.3 / 2.4 IMT700 will provide the optimal coverage for the WOAN rural deployment
3. **Objectives**
Noted – We support the objectives of the IMT bands licensing
4. **Legal Framework**
Noted
- 4.28 We express our concern that there remains no committed final switch-off date of the analogue television broadcasting services. This places the ability to

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deploy the WOAN and other industry operators spectrum utilisation in a situation where no commitment to rural deployment will be possible.

5. Proposed Spectrum for the Award

Noted

- 5.3.4 Option 4 is considered most appropriate. The single block allocation in IMT700 for the WOAN enables the most cost effective deployment for rural locations. This based not only on the extended coverage that it would provide but also a simplified and more efficient antenna configuration, reducing both cost and time to deploy. A split of bandwidth, as is depicted in Option 5 by comparison, would be less efficient and higher cost, both negatively impacting the Open Access principle of promoting the interests of consumers. Further, with a view to the WOAN being a complimentary system for government, the band will also match the WRC-15 resolution to harmonize 694-894MHz as a global standard for public safety, ensuring availability of appropriate devices.

It is further noted that Option 4 contains an additional 2 x 10MHz (FDD) (723-733MHz & 778-788MHz) for 'Future Assignment'. As described earlier, government, including PPDR, safety, security and all service delivery obligations have a need for secure broadband communications, especially in 'hot spot' areas i.e. Gauteng Province, major metropolitan areas and any National Key Point. It is recommended that this unassigned allocation be reserved for this purpose.

The parallel future assignment of 10MHz (TDD) (2680-2690MHz) should similarly be reserved for critical industrial networks which would include mining, smelting plants, independent power producers and similar industry where South Africa will benefit from international investment if appropriate communication and other resources are available. Consideration could also be given to the use of this spectrum for service delivery private networks in major metropolitan / city areas.

6. Obligations

Noted

- 6.2.3 It is suggested that government themselves, referring to the critical communications sectors, be tasked to provide input in respect of identification of underserved areas to be designated for prioritisation in the roll out of services.

On our behalf, we would approach roll out prioritisation from a perspective of a 'quick wins' policy. Whereby starting from the most populated rural and

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underserved areas. Providing broadband access connectivity to the highest number of users in the shortest possible time. It would appear that the province of Kwa Zulu Natal would be a good place to start.

Further 'quick wins' could be facilitated by licensees providing indoor / outdoor WiFi bandwidth, interlinked through an LTE modem from a distant site for: rural schools, hospitals, clinics, community centres, police stations etc.

- 6.3.6 Items 6.3.1 and 6.3.2 are clearly defined requirements, easily measurable. Item 6.3.3 defines a three year maximum period to meet the set obligations but falls short of defining the resulting actions of non-compliance. It is suggested that consideration be given to reducing the geographical area of an offending licensee to the area which is compliant and reissuing the remainder of the license to a new licensee.

For situations where government service delivery users may roam onto other networks, it is important that the Mission Critical functionality is retained. To achieve this it should be a requirement that all licensees are obligated to ensure that the provisions of 3GPP Release 13, 14 and 15 are implemented and operational.

- 6.4.5 In addition to the possible three to five (3 – 5) year license obligation holiday, consideration should be given to a reduced tariff thereafter, conditional upon the cost benefit being passed on to the MVNO's, including government, and in turn to their end users, based upon pre-determined qualification criteria.

- 6.4.8.1 An unnamed but critical facility to be provided should also include access to fibre based backhaul bandwidth, where available.

7. The Award Process of the Spectrum to the Industry

Noted

Annexure A Process to License the IMT Spectrum

Noted

Annexure B Process to License the WOAN

Noted

CONCLUSION

Altron Nexus (Pty) Limited are the holder of ECNS and ECS licenses. Our organisation has over fifty years of experience in communications for critical service delivery. We are proud of our Level 1 BBBEE accreditation. Our goal is not to apply for industry spectrum, but we are keen to contribute towards the goal of a successful WOAN for government deployment,

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meeting the goals as outlined in the National Integrated ICT Policy White Paper and subsequent DTSPS and the Authority. This may be in the form of a specialised MVNO, or fulfilling an MVNO support function for government WOAN communications. We will continue to contribute towards a better bandwidth experience for all.

We look forward to the advancement of this process.

Please find included also our Word transcript of this letter, both of which will also be submitted by email.

Yours faithfully

ALTRON NEXUS SOLUTIONS A DIVISION OF ALTRON NEXUS (PTY) LTD

A handwritten signature in black ink, consisting of a large, loopy 'N' followed by a horizontal line and a small flourish at the end.

NOEL WATERMEYER
SENIOR MANAGER – PRE-SALES ENGINEERING