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The Independent Communications Authority of South Africa (ICASA)
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Attention:
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12 October 2018

Invitation to comment on ICASA´s draft Radio Frequency Migration Plan 2018

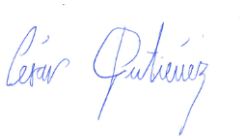
Dear Mr. Makgotlho,

Huawei would like to thank ICASA for the opportunity to comment on the draft Radio Frequency Migration Plan 2018, published in the Government Gazette #41854 of 01/09/2017.

Huawei is the leading supplier of infrastructure equipment for the telecommunications industry in South Africa and globally, as well as a major manufacturer of mobile handsets and other electronic consumer goods.

Huawei would like to submit the comments below for your consideration on a number of bands covered in the draft Plan. Please do not hesitate to contact us if you have any question.

Yours sincerely,



Comments from Huawei on ICASA´s draft Radio Frequency Migration Plan 2018

Huawei would like to commend ICASA for engaging in this significant review of the use of the radio spectrum in South Africa. The review addresses a large number of bands and will impact numerous spectrum users from many sectors, Huawei comments are limited to bands that could be used for mobile services, both public and private.

1) 380 – 400 MHz (section 4.10.10)

The 380 – 400 MHz band is assigned for PPDR and PMR services, according the Radio Frequency Spectrum Assignment Plan in government gazette 41164. Huawei notes ICASA´s remarks that technologies other than TETRA are under consideration for PPDR services and welcomes ICASA´s plans to seek proposals that enable adoption of a common standard for public safety users. However, we also believe it would be important for ICASA to consider technology neutrality. This would allow the deployment of innovative solutions beyond mission critical voice centric currently enable by TETRA, while ensuring compatibility with existing PPDR technologies. New broadband technologies would assist with the ever expanding scope and challenges in public safety.

Inevitably there is a paradigm shift from voice centric to data centric (GIS, video, data) applications, which are key drivers to more broadband deployments. We also note that the broadband and narrow band solutions are complementary, and would be able to coexist in a spectrally efficient way.

Huawei therefore encourages ICASA to consider band arrangements that support the introduction of mobile broadband technologies in this band. Finally, we note that public safety is a universal requirement and, given the geographical extension of South Africa, the use of lower bands for deployments is highly recommended and would be more economic than higher frequency bands.

2) 410 – 430 MHz (section 4.10.11)

ICASA plans to migrate existing government and mobile data users out, and to reserve the

band for “Public Digital Trunking” As highlighted in the previous section Huawei is of the view that ICASA should also consider technology neutrality in this band, in particular the possibility to deploy broadband mobile networks driven by the applications encompassing video data and voice. Huawei wishes to bring to the attention of ICASA the ongoing harmonisation in CEPT of the 410-430 MHz band for broadband PPDR. As a result of the European process, 3GPP will add this band to their LTE specifications shortly and we expect an ecosystem will develop for PPDR and PMR on the basis of the LTE technology.

3) 450 – 470 MHz (section 4.10.12)

Huawei supports ICASA´s plans to introduce IMT in this band, which is ideally suited to provide mobile and fixed broadband to rural communities. At the same time, the systems currently operating in this band often support critical communications which require secure and interference free access to spectrum at any time, even if this means that the actual occupancy of the spectrum is low on average over time. Notably the mining, transport (rail) and utilities have critical operations that are mostly localised and as a result the spectrum may appear inefficiently used. Therefore, spectrum efficiency might not be the best measure to evaluate the overall economic & social value generated by systems used for rail and mining communications which include safety, security and mission critical operations.

In particular, the mining sector faces diverse challenges that includes among others new mining regulations mandating applications such as collision detection, fatigue detection tracking and location, as well as automation of some of their operations especially in high risk areas and with regards to security of the minerals. These aspects requires careful consideration. Re-allocation needs to focus on existing applications as well as future requirements, which will be broadband oriented. Separately, the rail sector requires train to ground communications for train control requirements as well as security. Rail have extensive geographical areas which implies broadband applications in the lower spectrum bands.

In summary, we suggest ICASA could evaluate the spectrum needs of the PMR community

with measures other than crude spectrum efficiency. We ask ICASA to find a suitable alternative band to re-allocate the trunking systems from existing services, as well as considering immediate and future requirements. We note that migration to higher frequencies might not be feasible for rail and utilities due to the extensive nature of geographical coverage. We also note that technologies are available that enable these users to share the same broadband spectrum, with some elements of the network shared whist they can retain their specific services.

4) 694 – 790 MHz (section 4.10.14)

Huawei compliments ICASA for the ongoing efforts to switch over analogue TV and to clear the 700 MHz and 800 MHz bands for mobile use. We do support the release of the bands for IMT as well as PPDR in this band. Careful consideration should be given to broadband PPDR, which realistically requires a minimum of 10 MHz in this or other band for the broadband services required to address diverse safety & security challenges.

5) 862 – 890 MHz (section 4.10.16)

Huawei would like to bring to the attention of ICASA the importance of the licence exempt allocation in the 863-870 MHz range. Huawei is concerned with ICASA´s proposal to shift the cdma assignment of Neotel from 872.775 – 877.695 to 870 – 875 MHz. We consider this may result in interference to data networks operating in 865 - 869.65 MHz. Secondly, we would like to ask ICASA to consider, as part of this migration plan, to update the South Africa licence exempt regulations to include new allocations for Data Acquisition devices: access points with 500mW ERP operating in 865 - 869.65 MHz, and non-specific SRDs with 25mW ERP in 863-868 MHz.

6) 1427 – 1452 MHz and 1492 – 1517 MHz (section 4.10.19)

The draft Radio Frequency Migration Plan 2018 proposes to maintain existing point to point links, and an allocation of these bands to rural broadband. However, Huawei notes that these bands have been identified by the ITU RR for IMT, and that the SADC frequency

plan is also identifies the upper block for IMT. Huawei kindly suggest ICASA to reconsider its plans for these blocks and to allocate them for mobile services, together with the 1452 - 1492 MHz (see next). These three blocks together form the L-Band mobile band, which has been specified by 3GPP and is under consideration by many administrations globally for LTE.

7) 1452 – 1492 MHz (section 4.10.20)

ICASA plans to “Allocate this band to PTP/ PMP/ BFWA depending upon the availability of equipment. Communal/ private repeaters could also operate in this band”. Huawei notes that these bands has been identified for IMT in the SADC frequency plan and in the ITU Radio Regulations. The authority is requested to consider this band for either public mobile services or emergency and temporary communications for government services..

8) 2500 – 2690 MHz (section 4.10.29)

The draft Radio Frequency Migration Plan 2018 proposes to migrate this band to mobile services, in line with the spectrum assignment plan in notice no. 277 from 2015. The channel plan would be based on the arrangement C1 from ITU Recommendation M.1036: 2500-2570 MHz paired with 2620 – 2690 MHz, and 2570-2620 MHz in unpaired mode and two 5 MHz guardbands separating the FDD and the TDD blocks.

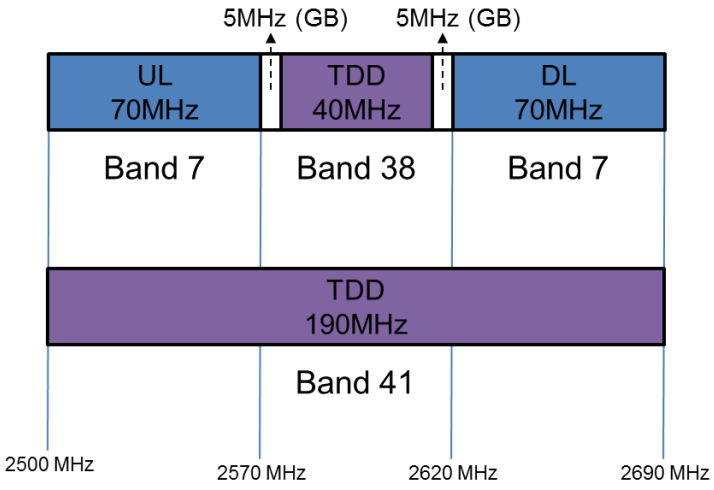
Huawei welcomes the progress towards opening this band for mobile services, but we would like to ask ICASA to reconsider the channel plan. A TDD only plan, in line with 3GPP Band 41 (see figure below), would provide 190 MHz contiguous spectrum and would have several advantages over the arrangement in notice no. 277:

- A TDD plan does not require guardbands – the two 5 MHz blocks would not be necessary as there are no FDD to TDD boundaries[1]
- Inter-band interference between FDD and TDD blocks requires an additional filter at

[1] Note that no guardbands are required only if TDD networks operating in contiguous blocks are synchronised

the BS

- Carrier aggregation between the FDD band and the TDD band in its centregap (3GPP Band 7 and Band 38) is not possible due to self-interference
- Band 41 has been adopted in China and the US, the combination of Band 7 and Band 38 is adopted in Europe mostly. In Europe, use of the TDD band 38 is generally very low due to the need for guardbands and deployment complications.
- Although support of Band 41 in handsets is not as widespread as support of Band 7, this is due to Band 7 having been release earlier. New handsets that support Band 7 also support Band 41.



9) 3300 – 3400 MHz and 3400 – 3600 MHz (section 4.10.30)

Huawei fully supports ICASA´s plans to introduce IMT in 3400-3600 MHz and to put in place a TDD channel arrangement. We also encourage ICASA and the government to expedite the investigations on band 3300-3400 MHz, in particular to start considering the feasibility of coexistence of radars and IMT or, alternatively, the migration of the radars to a different band. In our view, the 3300-3600 MHz range will be key for the development of 5G in South Africa. One important aspect of 5G is the need for large blocks for each operator. The common view of the industry is that ideally a contiguous block of 100 MHz should be made available nationally for each mobile operator. We note that the 3400 – 3600 MHz currently has national and regional assignments with blocks sizes of 2x14 MHz

or 2x28 MHz. Huawei kindly suggests ICASA to work with the licence holders in order to defragment the band and facilitate larger blocks for 5G.

10) 3600 – 4200 MHz

Huawei welcomes ICASA´s plans to introduce BFWA on the basis of sharing with fixed links and fixed satellite services. Huawei also supports ICASA´s decision to move VSAT use to the Ku band - as ICASA rightly identifies, it is not possible to coordinate ubiquitous and un-identified VSAT terminals with terrestrial services.