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**The Independent Communications Authority of South Africa  
(ICASA)**

350 Witch-Hazel Avenue, Eco Point Office Park  
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**Attention:**

Mr Manyapelo Richard Makgotlho

Email: [rmakgotlho@icasa.org.za](mailto:rmakgotlho@icasa.org.za)

11 February 2022

**Re: Response to ICASA's draft Implementation of the Radio Frequency  
Migration Plan and the International Mobile Telecommunications (IMT)  
Roadmap**

Dear Mr Makgotlho,

Huawei would like to thank ICASA for the opportunity provided to the company to comment on the **draft Implementation of the Radio Frequency Migration Plan and the International Mobile Telecommunications (IMT) Roadmap**, published in the Government Gazette No. 45690 dated 24/12/2021.

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

Huawei welcomes the opportunity to submit the following comments for your consideration and requests the opportunity to make an oral presentation. Please feel free to contact us if you have any question or require any further clarification.

Yours sincerely,

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11 Feb 2022

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## **Comments from Huawei on ICASA's Draft Implementation of the Radio Frequency Migration Plan and the International Mobile Telecommunications (IMT) Roadmap**

Huawei fully supports ICASA efforts in the regulatory process of implementing the Radio Frequency Migration Plan and the International Mobile Telecommunications (IMT) Roadmap. We provide comments on the spectrum bands prioritized in this consultation process herewith.

### **450- 470 MHz**

Huawei notes that ICASA plans to clear the band as per the current regulations and license to IMT System either Band 31 or Band 72. We support this move from ICASA.

However, according to the latest GSA LTE device ecosystem report, there are only 195 devices for Band 31 and 37 devices for Band 72, which is very few compared to the 8, 915 devices for Band 20 (IMT800) and 4, 268 devices for Band 28 (IMT700). These devices are mainly routers and Mi-Fi's for IoT and special industrial usage. This may also limit the service offerings in South Africa which this band can provide.

### **733-758 MHz**

Huawei notes that ICASA plans to consider RFSAP for PPDR in this band.

However, this is **not** a standard band and there is no developed ecosystem for this band at present. This makes it difficult for immediate deployment of the much needed broadband PPDR System to mitigate the ever growing and complex public safety issues including crime and natural disasters.

### **825-830 MHz and 870-875 MHz**

Huawei notes that ICASA plans to use this band for IMT.

This pairing is based on 3GPP Band 5 (IMT850, 824 to 849 MHz and 869 to 894 MHz), which cannot be used in full in South Africa because it overlaps with the existing 900 MHz band and the planned 800 MHz (although the blocks under consideration - 825 to 830 MHz and 870 to 875 MHz – do not overlap).

Introducing LTE in this band in Africa is **not** recommended because the band plan would not be in-line with typical ITU Region 1 IMT allocations. This band could, however, be used for industry applications specifically and could be an ideal complementary band for the PPDR. The ecosystem for the band is already mature with existing products deployments in other regions.

### **1427-1518 MHz**

Huawei notes that ICASA plans to release 1429-1452 MHz and 1452-1492 MHz for IMT. We support this move from ICASA.

However, we would also encourage ICASA to release the 1427-1429 MHz and 1492-1518 MHz as soon as feasible to enable a significant block in this band (91 MHz vs. 63 MHz).

While some regulators have already assigned this band for supplemental downlink (SDL – Band n75), we expect that there may be a future migration to the more flexible Band n50+n51 arrangement. As such, we would recommend that ICASA considers immediately assigning the range 1432-1518MHz in a Band n75 configuration, with a migration plan to the n50+n51 (1427-1518MHz) TDD band

plan. This would allow for use of 5G for downlink only, uplink only or uplink/downlink transmissions depending on the needs of the operators.

### **1880-1920 MHz**

Huawei notes that ICASA does not include this band in the migration plans and no current significant interest for IMT.

There are some considerations regarding the use of this band for railway industry communication systems future requirements. The Future Railway Mobile Communication System (FRMCS) has been identified as the technology that would succeed the current rail communication technology GSM-R, which is an essential element of the European Railway Traffic Management System (ERTMS). The requirement emanates from the need to ensure the support of railway digitalization process and service innovation, hence CEPT has identified the GSM-R and its successor(s), including FRMCS designated as Railway Mobile Radio (RMR) enabling technologies. The CEPT have identified the 1 900-1 910MHz unpaired band as the target for Railway Mobile Radio.

### **2300 – 2450 MHz**

Huawei notes that ICASA plans to complete the feasibility study, and review and amend the RFSAP to release the 2360-2400 MHz not assigned.

We support this move from ICASA.

### **3300 - 3400 MHz**

Huawei notes that ICASA plans to proceed with a RFSAP for IMT in this band.

We support this move from ICASA.

The network ecosystem for this band is still small but growing, supported by recent allocations in South America and South Asia.

### **3600-3800MHz**

Huawei notes that ICASA does not include this band in the migration plans.

However, this band will be considered at WRC-23 for upgrade of the mobile service to primary. Furthermore, the band is widely used for 5G in many countries globally (notably in Europe and the Middle East). We strongly recommend that ICASA considers possible IMT introduction in this band. On this basis, we suggest ICASA may change the South African Allocation to upgrade the mobile service to primary. If this is not possible, we recommend adding a note to indicate that WRC-23 may upgrade the mobile service allocation to primary and that the band is under consideration for IMT.

### **4800-4990MHz**

Huawei notes that ICASA does not include this band in the migration plans.

However, this band has been identified as IMT in South Africa since WRC-15. We recommend that ICASA considers drafting a Radio Frequency Spectrum Assignment Plan (RFSAP) to provide its latest position on this band where potential migration of national security fixed services and detailed action plans are concerned.

## **5925/6425-7125MHz (6GHz)**

Huawei notes that ICASA does not include this band in the migration plans.

However, 6GHz is potential golden capacity spectrum for 5G/6G and is in the WRC-23 agenda item 1.2 (AI1.2) for consideration of IMT identification. Beyond the 3GHz & 4GHz bands (which still suffer the repercussions of legacy incumbent use), the next available capacity band for IMT is in the 6GHz range.

There is significant effort globally towards making IMT a reality in 6GHz:

- Field tests show that with the improvements of Massive MIMO, 6GHz will have the similar coverage as 3.5 GHz.
- Global collaboration through webinars, joint statements, whitepapers, reports etc.
- Ecosystem development is on-going on 6GHz IMT. We expect 6GHz will be commercial ready for largescale deployment around 2024~2025.
- ATU have agreed on preliminary positive position toward upper 6GHz band (6425-7125 MHz) for IMT.
- According to the latest analysis by GSMA-Intelligence<sup>1</sup>, an IMT exclusive or a balanced allocation of 6GHz spectrum will bring the greatest contribution to economy, which will greatly empower the future economy growth of South Africa.

When compared to the limited user connectivity of Wi-Fi (which requires an existing broadband connection), the prospect of providing high capacity IMT services to large numbers of users is a more compelling proposition in a country such as South Africa with very limited fixed access. Furthermore, there are

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<sup>1</sup> <https://data.gsmainelligence.com/research/research/research-2022/the-socioeconomic-benefits-of-the-6-ghz-band>

alternative bands to accommodate potential increases in traffic in local area networks such as the 60 GHz band where WiGig is available.

It must be noted that broadband connectivity in South Africa is often provided through a Mobile hotspot. This means that the data traffic will be backhauled over the Mobile network's spectrum. Therefore, it is more efficient to use a band such as 6GHz for mobile or Fixed Wireless Access rather than using it for Wi-Fi.

Finally, we note that the proposal at WRC-19 to consider 6GHz for IMT identification was made by the Africa region, on the basis that this frequency range would be better suited to the African needs instead of higher frequency spectrum. This remains the case.

For all these reasons, we suggest ICASA considers IMT allocation for the full 6GHz band or at least the upper part of it in the near future, which would be well aligned with South Africa's needs.

### **Suggestion to amend the maximum radiated power limit to adopt the usage of Active Antenna Systems**

Active Antenna Systems (AAS) use new technologies e.g. Beamforming. Therefore, 3GPP Technical Specifications 38.104 specifies the transmitter and receiver requirements of AAS base station as Over the Air (OTA) instead of conducted. The regulatory requirements in CEPT and elsewhere are defined as Total Radiated Power (TRP), not Effective Isotropic Radiated Power (EIRP). TRP is more accurate in assessing interference between 5G and other mobile systems.

From the current ICASA RFSAPs, there is a maximum radiated power limit of 61dBm/5MHz EIRP. However, we see that regulatory regime in CEPT is as follows:

- CEPT ECC Decision (11)06<sup>2</sup>, which contains the harmonised technical conditions for use of 3400-3800 MHz, specifies all transmitter requirements for AAS in terms of TRP. In addition, it does not include an in-block power limit.
- ECC Report 281<sup>3</sup> notes that if administrations wish to introduce an in-block limit, then a value should not exceed 68dBm/5MHz EIRP per antenna for non-AAS and 47dBm/5MHz TRP for AAS may be applied.

In the light of this, it would be prudent for ICASA to reconsider its position on the use of the EIRP metric in the AAS requirements and conduct further research into recent global developments.

We would also suggest to update the definitions of “maximum radiated power limits” as above in the related Radio Frequency Spectrum Assignment Plans (RFSAPs) in the implementation of the migration process. This would apply to the TDD bands above 2GHz: 2300-2400MHz, 2500-2690MHz, 3300-3800MHz, etc.

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<sup>2</sup> <https://docdb.cept.org/download/1531>

<sup>3</sup> <https://docdb.cept.org/download/3419>