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Reference: Qualcomm Response to ICASA Notice Inviting Comments Regarding the Second Draft Frequency Migration Regulation and Radio Frequency Migration Plan (Gazette No. 36031 of 24 December 2012)

Dear Sir:

Qualcomm Incorporated ("Qualcomm") welcomes the opportunity to respond to the Independent Communications Authority of South Africa ("ICASA") Notice Inviting Comments Regarding the Second Draft Frequency Migration Regulation and Radio Frequency Migration Plan ("Second Consultation"). As expressed in our previous comments to the First Draft Frequency Migration Regulation and Plan ("First Consultation"), Qualcomm is a leading developer of the technologies used for advanced wireless services in metropolitan, regional and rural environments. We play a vital role in the deployment of 3G mobile broadband throughout Africa. With the continued evolution of mobile broadband technologies, Qualcomm will remain a leader in the provision of advanced wireless services to the citizens of South Africa and worldwide.

The phenomenal growth of the mobile industry has been a catalyst for economic growth in South Africa and throughout the region over the last decade. A November 2012 report by the GSM Association ("GSMA") revealed that Sub-Saharan Africa is the fastest-growing mobile market in the world.[1] In Southern Africa, this has translated into substantial economic benefits, with the mobile sector contributing nearly 5 percent to the subregion's Gross Domestic Product ("GDP") in 2011.[2] In South Africa alone, the mobile sector is expected to contribute an additional USD 16 billion to the country's GDP and create 1.5 million new jobs in South Africa between 2015 and 2020.[3] The release of the 2.6 GHz band and Digital Dividend bands (i.e., 700 MHz and 800 MHz bands) in South Africa is expected to increase GDP by USD 10.7 billion and create over 1 million new jobs between 2015 and 2020.[4]

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[1] GSMA, "Sub-Saharan Africa Mobile Observatory 2012," November 2012, p. 9, http://www.gsma.com/publicpolicy/wp-content/uploads/2013/01/gsma_ssamo_full_web_11_12-1.pdf.
[2] GSMA, "Sub-Saharan Africa Mobile Observatory 2012," p. 2.
[3] GSMA, "GSMA Report Reveals Mobile is Catalyst for Explosive Growth in Sub-Saharan Africa," November 13, 2012, http://www.gsma.com/newsroom/gsma-report-reveals-mobile-is-catalyst-for-explosive-growth-in-sub-saharan-africa.
[4] GSMA, "Sub-Saharan Africa Mobile Observatory 2012," p. 34.

This consultation is well-timed considering that South Africa faces a coming spectrum shortage. According to the GSMA, mobile data usage in South Africa grew an average of 490 percent per year between 2007 and 2010, while the amount of spectrum allocated to mobile services remains well below the allocations in developed markets. Whereas South Africa has awarded 340 MHz for mobile services, for example, allocations in developed markets generally exceed 500 MHz (for example, the United States has assigned 547 MHz for mobile services).

In order to maximize the benefits of mobile services, particularly broadband, ICASA should implement a number of changes to the existing framework. In particular, mobile operators require access to ample, harmonized spectrum to enable them to build broadband networks capable of meeting the needs of advanced, bandwidth-hungry applications and services. It is vital to make efficient use of spectrum resources through the timely award of the Digital Dividend and other frequency bands allocated to Mobile and identified for IMT on a technology-neutral basis.

Qualcomm is encouraged by ICASA's efforts to implement a Frequency Migration Regulation and Plan that will make available additional and much-needed spectrum for advanced wireless services in South Africa. As expressed in the First Consultation, Qualcomm supports efforts to make international and regional harmonization a key component of any changes to the National Radio Frequency Plan and, subsequently, to spectrum migration plans. We particularly support plans to release both the 800 MHz band ("Digital Dividend") and the 700 MHz band ("Digital Dividend 2") for mobile use in order to create a large, contiguous swath of digital dividend spectrum from 694-862 MHz. Qualcomm also supports ICASA's proposals to reallocate the 450-470 MHz from Trunked Mobile to Mobile (IMT); add a new allocation to the 1452-1492 MHz band ("L Band") for mobile services; and allocate the 2.6 GHz and 3.4 GHz bands for mobile use on a primary basis, in line with regional and international harmonization efforts.

Qualcomm continues to support spectrum refarming, particularly in the heavily used GSM bands, but notes that spectrum licenses are currently technology-neutral and allow operators to deploy their choice of technologies. In this regard, policies related to spectrum refarming in these bands may not be necessary to address in the Draft Frequency Migration Regulation and Plan, particularly since certain operators are already migrating from 2G to more advanced technologies based on technology-neutral licenses.

We note that the Second Consultation proposes relatively few changes to the First Consultation, but refines and clarifies several proposals. The most notable change is the addition of the Model Radio Frequency Spectrum Assignment Plan ("Model Plan"). Qualcomm appreciates the inclusion of the Model Plan, and welcomes the opportunity to comment on the updated proposals. In the following sections, we provide our comments on the proposals presented in this Second Consultation, particularly those relating to the reallocation of certain frequency bands (i.e., 700 MHz and 800 MHz bands, 450-470 MHz band, 1452-1492 MHz band, and 2.6 GHz and 3.4 GHz bands) and the Model Plan.

1 Comments on ICASA's changes to the proposed migration following the First Consultation

1.1 Reallocation and release of the 800 MHz band ("Digital Dividend") and 700 MHz band ("Digital Dividend 2")

Qualcomm continues to support ICASA's proposed migration strategy for the 790-862 MHz band ("800 MHz band" or "Digital Dividend"), finding that the strategy is appropriately aligned with the paired frequency arrangements for the 698-960 MHz band set out in ITU Recommendation M.1036-4, as well as with Qualcomm's overall goals of maximizing the amount of spectrum available for mobile services in these bands. Qualcomm also supports the proposals in the Draft Frequency Migration Plan regarding the 694-790 MHz band ("700 MHz band" or "Digital Dividend 2") and ICASA's intention to define and implement a migration plan for the 700 MHz band concurrently with the 800 MHz band migration. Generally, ICASA's proposal for the Digital Dividend 2 would largely align with most ITU Region 2 countries and Region 3 countries that have reallocated the 698-806 MHz band from terrestrial broadcasting to mobile services, thus facilitating benefits from spectrum harmonization, including economies of scale and international roaming.

Qualcomm also agrees that the migration plan should follow the release of the updated National Radio Frequency Plan, which would indicate the new proposed allocations contained in ITU RR Footnote 5.312A. We continue to support setting the planned migration of broadcasters out of this band by 2015 to run in parallel with the migration process for the 800 MHz band. This would enable ICASA to establish technical and service rules simultaneously in the 700 MHz and 800 MHz bands, including harmonized band plans that maximize the amount of spectrum available for mobile broadband, as well as enable assignment of licenses in these bands in a single award process.

1.2 Reallocation and Release of the 450-470 MHz Band

As Qualcomm expressed in the First Consultation, reallocating the 450-470 MHz band to mobile services would result in harmonization with several countries adjacent to South Africa, which reduces the risk of harmful interference in border areas and facilitates cross-border communications and economies of scale. In the Second Consultation, ICASA has slightly modified the proposal to include a feasibility study prior to reallocation since this band is currently used for different services. The feasibility study would examine current levels of utilization and determine harmonization potential with neighboring states. Qualcomm supports conducting a feasibility study, provided that such a study is conducted in a timely manner and is subject to an open, transparent and inclusive input and review process.

1.3 Reallocation and Release of the 1452-1492 MHz Band ("L Band")

Qualcomm continues to support ICASA's proposal to allocate mobile services on a co-primary basis with fixed, broadcasting and broadcasting satellite services in the L Band. As ICASA noted, this band is currently assigned to Terrestrial Digital Audio Broadcasting ("T-DAB") and Satellite Digital Audio Broadcasting ("S-DAB") systems based on the current South African allocations. However, given ICASA's finding that sufficient spectrum is available for DAB in the 214-230 MHz band, where it is also currently allocated, Qualcomm supports ICASA's proposal to modify the L band allocation and align it with the ITU Region 1 allocation, which includes mobile services.

Qualcomm also continues to believe that the 1452-1492 MHz band should be designated specifically for mobile supplemental downlink ("SDL") or unpaired mobile downlink ("UMD") use, which provides a novel and effective approach to meeting future mobile broadband data demands. As such, we support ICASA's proposal in the Second Consultation to conduct a feasibility study on this option. As we noted in the First Consultation, an SDL uses unpaired spectrum to enhance the downlink capacity of mobile broadband networks through the combining or "bonding" of the usual mobile broadband downlink with a supplemental downlink channel(s) in a different band. This approach enables significantly faster downloads and supports a much greater number of mobile or portable wireless devices. In this context, the 1452-1492 MHz band, when used as an SDL band bonded with existing UMTS/LTE bands, represents a unique opportunity to provide much-needed capacity given the greater downlink requirements of mobile broadband traffic.

Qualcomm recognizes that the L Band has been mentioned as a possible candidate band under WRC-15 Agenda Item 1.1, which could result in a new internationally harmonized band plan if adopted. However, we believe that moving forward with the allocation of the band to mobile services should be completed prior to WRC-15 and would not necessarily impact issues relating to international and regional harmonization.

1.4 Reallocation and Release of the 2.6 GHz and 3.4 GHz Bands

Qualcomm continues to support the proposed allocations for the 2500-2690 MHz ("2.6 GHz") and 3400-3600 MHz ("3.4 GHz") bands in the Draft Frequency Migration Plan, as did all commenters to the First Consultation. We further support maintaining ICASA's proposal to replan the 2.6 GHz band and to establish four blocks of paired spectrum—two blocks of 2x15 MHz each and two blocks of 2x20 MHz each—and two unpaired blocks of 20 MHz and 30 MHz each. We also continue our support for allocating the 3.4 GHz band on a primary basis for IMT, which would result in a harmonized IMT band across the entire SADC region, and would be consistent with the decisions reached at WRC-07. Qualcomm urges ICASA to move forward as quickly as possible with the planned international and regional harmonization of both the 2.6 GHz and 3.4 GHz bands.

1.5 Deletion of Section on Spectrum Refarming Efforts

As stated in the First Consultation, Qualcomm found that Section 4.13 regarding spectrum refarming appropriately characterized the need for spectrum refarming in the GSM/mobile bands, particularly the emphasis on access to sub-1 GHz bands due to the good propagation characteristics of these bands. However, Qualcomm noted that the service rules applicable to the existing licenses are already technology-neutral and currently enable operators to deploy LTE systems in the 900 MHz and 1800 MHz bands. Thus, specific regulations regarding refarming should not be necessary in this case. As such, we support the deletion of sections relating to the establishment of rules to permit spectrum refarming since spectrum refarming is already permitted under the existing framework. Overall, Qualcomm continues to support the technology neutral, flexible policies that make technological evolution possible.

2 Comments on the Model Radio Frequency Spectrum Assignment Plan

As stated above, Qualcomm appreciates the inclusion of a Model Plan that provides a template for the proposed process by which ICASA would reallocate future spectrum bands. We support the

introduction of a standard template outlining the rules for operating in any frequency band, which can promote the principles of transparency and non-discrimination as the same general rules would apply to all holders of spectrum use rights. Qualcomm further notes that the Model Plan offers sufficient flexibility to enable variations in how the rules may be applied—this flexibility is important considering that the propagation characteristics and demand for various bands may impact the rules governing their allocation and assignment.

Qualcomm broadly agrees with the proposed provisions outlined in the Model Plan. In particular, Qualcomm supports maintaining technology- and service-neutral technical rules and therefore agrees that Section 3.6 of the Model Plan should outline the "likely use" of the band rather than establish what the specific use or uses of the band would be. However, we caution against including Section 3.7, which would permit ICASA to include a specific list of technologies "applicable for the provision of the system and service" that are identified as appropriate by the ITU. Qualcomm's concern is that the possible inclusion of a specific list of technologies may undermine a technology-neutral framework.
In conclusion, Qualcomm appreciates the opportunity to once again provide input on the Draft Frequency Migration Regulation and Plan. We support ICASA's initiatives to establish a transparent and effective framework for migrating users of the radio frequency spectrum under the National Radio Frequency Plan of South Africa. We further encourage ICASA to continue developing policies that allocate scarce spectrum resources to their highest value use, thereby maximizing the economic, social and consumer benefits of mobile broadband.

If you have any questions regarding this submission, please do not hesitate to contact me.

Sincerely Yours,

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