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22nd January 2019

The Chief Executive Officer,
The Independent Communications Authority of South Africa (the Authority),
350 Witch-Hazel Avenue,
Eco Point Office Park,
Eco Park,
Centurion,
Gauteng.

Attention: Mr Manyapelo Richard Makgotlho

Dear Sir,

Draft International Mobile Telecommunications (IMT) Roadmap for Consultation

The GSMA is the global mobile industry association with a membership of more than 750 mobile operators and more than 300 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organizations in adjacent industry sectors.

The GSMA is pleased to forward this submission with comments on the Authority's draft International Mobile Telecommunications (IMT) Roadmap ('the Draft') which has been published for public consultation.

In the first instance, the GSMA would like to congratulate the Authority on taking this exceptionally important step in the management of scarce and invaluable Spectrum resources. Mobile services have become a critical enabler of socioeconomic growth and, with spectrum providing the foundation of mobile technology, the importance of providing clear plans for its use and availability cannot be overstated.

Our comments are set out to speak to a General comment on the document, followed by comments specific to particular sections in the draft. Our submission is set out as follows;

1. General Comment

In numerous instances, the Draft indicates intentions to make spectrum bands available for IMT and, where necessary, mentions the need to migrate existing services and/or licensees, rearrange the spectrum bands, investigate and/or adopt channel plans, and similar steps intended to make the bands ready for IMT. However, specific timelines for when these activities will be carried out is unclear.

Recommendation

For the roadmap to be successful at meeting its objectives to describe the IMT Vision – Framework and overall objectives of the future development of IMT for 2020 and beyond, it is important that it includes clear steps/actions and timelines towards making relevant spectrum bands available for IMT. For a roadmap intended to describe how IMT spectrum will be made available in South Africa, it would be a crucial omission if the roadmap is not as clear and specific as possible with regards to dates and timelines associated with how IMT spectrum will be allocated and assigned.

2. Guard Bands

In section 7.2 of the document, the draft seeks to stipulate that the *minimum required guard bands and potential other intelligent interference suppression options have to be investigated properly so as to facilitate coexistence between IMT services and technologies in adjacent spectrum bands, in line with the bands already identified in the Radio Regulations (RR). for use with IMT-compatible standards.*



Particularly, the section notes that the use of interference-mitigation techniques is necessary to mitigate the receiver desensitisation of LTE/WiMAX 900 base stations operating below 915 MHz by Public Mobile Radio (PMR)/Public Access Mobile Radio (PAMR) (CDMA PAMR, Terrestrial Trunked Radio (TETRA)) base stations operating at frequencies above 915 MHz. It also conjectures that the worst interference cases will potentially be from E-GSM-R base stations into LTE/WiMAX base stations.

The potential interference mitigation techniques mentioned included the reduced PMR/PAMR BS transmission power, Spatial separation between operators, application of filters on relevant base stations, and setting 'sufficient' guard bands between the 900MHz mobile allocation and the first PMR/PAMR channel in use. The draft suggests that the ECC041 assumed >2 MHz separation between GSM-uplink and CDMA-downlink.

Recommendation

For the viability of the operations of different communications networks in adjacent spectrum bands and in circumstances where interference is possible, it does make sense to anticipate that some mitigation techniques will be implement. However, we do recommend that in the event that guard bands are required they are implemented in line with internationally standardised limits, and ensure that the use of IMT spectrum is maximised whilst limiting how much of it is apportioned to guard bands as far as feasible. Service providers are currently challenged with the delivery of quality services with the scarce spectrum that is available and it would be counterproductive if any measures are adopted which further limit the amount of spectrum that is accessible by these service providers.

3. IMT2020 Frequencies for Consideration

The Draft recognises the need to identify new spectrum bands to meet the needs and requirements of IMT2020. It recognises the WRC15 identification of spectrum in the L-Band (1.427-1.518 GHz) and proposes for studies to be conducted to determine if a rearrangement of the band is necessary to make the band available for IMT assignment. The Draft also mentions the C-Band (3.3 – 3.6 GHz) which was allocated to mobile at WRC15, and proposes that an unpaired TDD channel arrangement be considered for the band. The Draft also references the conclusions of technical studies which show that sharing is possible between IMT and with AAS and ship-based radars in the 3300-3400 MHz range.

Recommendation

With regards to the L-Band, we note that band plan discussions are ongoing regarding supplemental downlink (SDL), FDD and TDD, with the Americas and Europe already agreeing to adopt a SDL plan for the band and Japan already deploying IMT networks in a FDD band plan.

In line with the Draft's intentions to lists options and recommendations for the deployment of bands designated for IMT usage, potential migration scenarios and timelines, it will be useful for the Roadmap to take into consideration the outcomes from the work that ITU-R Working Party 5D (WP5D) is conducting on the L-Band. The outcomes are anticipated to be ready by the middle of 2019. The outcomes of this work will provide guidance that will put the authority in a position to reflect on channel plan options for South Africa.

For the C-Band, the Roadmap should recognise the need to engage with stakeholders to determine the parts of the band to make available for mobile broadband and the timetable for assigning it and identify the parameters for coexistence with existing services to ensure the mobile broadband ecosystem can grow in South Africa. As with the L-Band, WP5D is driving work on compatibility studies in this band, and the outcomes of this work will be useful towards adopting a position on this band. Furthermore, we believe regulators should aim to make available 80-100 MHz of contiguous spectrum per operator in this prime 5G mid-bands.



4. 24.25-27.5 GHz, 37-40.5 GHz, 40.5-42.5 GHz, 66-71 GHz Ranges

Agenda Item 1.13 at WRC-19 seeks to identify new IMT spectrum above 24 GHz. Some of the bands under consideration in the Agenda item, such as 26 GHz range, the 40 GHz range and the 66-71 GHz, already have strong multiregional support, a development that is beneficial to harmonisation and the benefits of economies of scale. We believe 5G needs a significant amount of new harmonised mobile spectrum, and around 1 GHz per operator in millimetre wave bands will be necessary.

For the spectrum in the 26 GHz band (24.25-27.5 GHz), and 40 GHz range (37-40.5 GHz and 40.5-42.5 GHz ranges), the Draft recommends for studies to be performed into the detail current usage of the band and the availability for IMT2020 applications. However, no timelines are indicated as to when these studies are intended to be conducted.

Recommendation

It is pertinent to reiterate that WRC19 will decide on the identification of these bands for IMT. Nonetheless, the roadmap should provide a timetable that includes the timelines for when the afore-mentioned studies will be conducted.

For the 66-71 GHz band, the Draft recommends that a Frequency Spectrum Assignment plan is developed for the band.66 to 71 GHz. Further to this recommendation, we also propose that in addition to the identification of the band 66-71 GHz for IMT it should be available for use by IMT2020 systems with flexibility to allow different licensing regimes, enabling both IMT and non-IMT technologies.

5. IMT Spectrum and Universal Service Obligations

The Draft specifies minimum obligations for licensees of IMT bands in order to achieve universal service targets whilst noting the need to align these obligations with the Broadband Policy, and recognises that 'Invitations To Apply' (ITA) will also specify coverage targets for the relevant spectrum bands under consideration of the ITAs. The Draft further suggests that the licensees that are assigned spectrum should be subject to strict and enforced coverage targets. This raises concern by providing a platform for there to be the risk of imposing obligations that may hinder the ability of licensees to cost-effectively provide services particularly in instances where spectrum is assigned at significant financial costs.

For considerations for assignment, the Draft also acknowledges the benefits of linking low-frequency coverage bands with high-frequency capacity bands

Recommendations

In order to reduce the risk of imposing coverage obligations in a manner that is counter-productive to the objectives of the obligations, we recommend that the Draft recognise that, in assigning spectrum, coverage obligations can be prioritised over the prospects of financial profits from the sale of spectrum. This can be reflected with addition of appropriate text in Section 9.

Additionally, we encourage considerations for assigning spectrum in a manner that links low-frequency coverage bands with high-frequency capacity bands. This link has the potential to allow licensees to have the right spectrum to meet the service requirements in high-population-density urban areas and sparsely populated rural areas but also holds the risk for inefficiency in that an existing licensee could be forced to obtain both low and high band spectrum even if one is maybe not needed.

We therefore recommend that, in the event that spectrum is to be assigned, any decisions to link spectrum be included as part of the ITA that should be subject to rigorous stakeholder consultations so that the demand and appetite for the linked bands can be gauged.



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6. Considerations Arising out of IMT Roadmap 2014 & 2018: 700 MHz & 800 MHz

We note that, for the 700 MHz and 800 MHz bands, reference is made to 'option 2 and 3' without providing any additional clarity as to what these options provide for.

Recommendation

The Roadmap should clearly indicate the channel plan intended for 700 MHz and 800 MHz band. This is particularly useful for regional/global harmonisation and for extracting the benefits of economies of scale, as industry is able to prepare for when the bands become available for assignment (in terms of equipment ecosystem).

It will also be to provide indicative timelines as to when these bands will be made available, including a roadmap towards completing the Digital Migration and freeing-up the 700MHz band.

Once again, we commend the Authority for taking this important step in Spectrum Management. The GSMA is grateful for the opportunity to participate in this consultation process. Should there be need to provide additional clarification on our submission, please do not hesitate to get in touch with the undersigned.

Please accept assurances of our highest regards.

Yours Sincerely,

A handwritten signature in black ink, appearing to be "Peng Zhao", written over a horizontal line.

Peng Zhao
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A handwritten signature in blue ink, appearing to be "Kamal Tamawa", written over a horizontal line.

Kamal Tamawa
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