SACF Comments on the Long-Term Outlook on Spectrum

14 April 2022

ICASA Public Hearing

Introduction

- SACF is an industry association that represents a broad group of members with diverse interests as a result of their market positioning

- Our submission is limited only to areas of agreement between our members agreed related to the broad issues while our members focus on narrower commercial interests

- The SACF's focus is on advocacy in the policy and regulatory environment towards creating a competitive, inclusive sector that attracts and retains investment

Themes

- Forward-looking approach
- Investment friendly
- Regulatory certainty
- The importance of meaningful and effective public consultation
- Spectrum sharing
- Principles towards creating an effective licensing framework

The critical role of spectrum

Global 5G penetration is expected to rapid - reaching 3.5 billion in the next 6 years reaching(Ericsson Mobility Report Nov 2020)

ITU estimates average mobile traffic per subscriber is expected to also grow up to 270 GB/month/subscriber(ITU report)

A mix of technologies would be best for rural areas

Spectrum is one of the most critical but finite resources

The focus of licensing spectrum must be to support technologies that focus on broad spectrum access

Regulatory certainty and investment friendly

- Effective networks routinely require significant annual investments in the order of billions annually
- Digitisation is critical to organisations
- COVID provided a snapshot of the changed usage patterns and a glimpse of new services
- Essential to recognize current level of investment
- This makes regulatory certainty critical to investment
- The rules must be clear, fair, transparent and predictable
- Licensing processes cannot be opaque as was the case in the 3600 -3800MHz band

Forward looking approach to licensing

- Spectrum is a critical element to mobile networks but is an input
- Spectrum licensing ought to be in step with technological changes
- A long-term vision is a good idea but a 20-year horizon may be too long a horizon and may be a good thought exercise but the likelihood of the accuracy of the forecasts is limited
- A critical principle to licensing is that technology preferences must be based on services that offer the broad access
- Newer technologies must be access to spectrum adopting a flexible approach that does not lock licences in regardless
- Experimental technologies and services should initially be provided on a best efforts basis
- Licensing must be a seamless process where spectrum is licensed never again reaching a state where spectrum was licensed for 16 years

Spectrum Sharing

- SACF members support spectrum sharing on a commercially agreed paid basis
- Licences are issued on an exclusive basis
- The recent high demand spectrum auction raised R14.4 billion instead of the initially forecast amount of R8 billion, the assigned spectrum was coupled with extensive coverage and social obligations
- Sharing access is anticipated to enhance efficiency but must be done on a commercially agreed basis to recognize the significant investment required in accessing the spectrum
- The regulations already provide for spectrum sharing, but lacks detailed regulations which would add clarity and certainty
- We would urge ICASA to begin a consultative process on spectrum sharing

Access to stable consistent power

- Access to power is critical
- The instability and inadequacy of the power supply significantly impedes access
- Networks face loses in the order of hundreds of millions annually to battery theft which impacts connectivity
- Current estimates by Eskom for load shedding for 2022 sits between 61 – 100 days

Qualitative factors important to understand the future IMT traffic demand in SA

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Uniform/continuous high capacity coverage cannot be delivered citywide and on motorways in a cost-efficient manner with mmWave (high capacity in hotspots) and cann``````ot be served by low frequency bands (large coverag``````e but not enough capacity to serve the target obligation).

National networks have been more ``````successful in South Africa

Continued dependence on mobile connectivity is the most dominant service choice for consumers - unlikely to change soon. ``````

The GSMA´s report on "Estimating the mid-bands spectrum needs in the 2025-2030 time frame" provides a good approach to calculating traffic and the resulting spectrum n``````````````eeds.

This report takes the IMT-2020 requirements as starting point, notably the 100 Mbps use``````````r experienced data rate.

It then considers how it can be fulfilled in severa``````````l urban areas in the world, including Johannesburg.

It shows that the spectrum needs in Johannesburg in the mid-bands would be between 1690 and 2010 MHz, including existing and scheduled assignments. ``````````

Considerations on regional vs national licensing

- Regional licences have proved far less successful in South Africa than national licences.
- Regional licences have significant draw backs:
  - Regional licenses require buffer zones at the boundaries to avoid co-channel interference between users on each side.
  - There would be an additional burden for ICASA to define, issue, and manage licenses, and for the operators to plan and run networks.
  - Seamless coverage along transport paths (rail, roads) becomes complicated.
  - Regional licenses do not have a good track record: past initiatives to allocate spectrum licenses on a regional or local basis have not been very successful (e.g. 3.5 GHz bands around 10 years ago in some countries).
  - Two recent C-band auctions (Austria, Ireland) proposed regional licensing across the whole band but have ended up with national licensing with the exception of a small part of the band.

Considerations on future spectrum allocations

- A key guiding principle ought to be a prioritisation of bands based on the availability of device ecosystems.
- The 6425-7125 MHz band is under consideration for IMT identification at WRC-23.
- It is a key band for the future development of 5G and future evolutions of the IMT family of technologies.
- It is likely the last remaining band below 26 GHz and above 1 GHz that can be made available for IMT.
- Once it is agreed at WRC-23, we believe that countries will open it for mobile use in the 2024-2030 timeframe.
- We recommend ICASA to include this band in its future plans for the second part of the decade.

Considerations on fixed service spectrum

- Spectrum allocation method: If the frequency is allocated by block without shared use, there would be no interference between service providers, in principle. The single service provider that uses the block can optimize the planning and the frequency band reuse. At the same time, the process of frequency application from the service provider would be very much simplified.
    - Low bands in the 7-13 GHz range: The number of 28 MHz channels is not enough to give a minimum block to each operator. There is 8*28 MHz in 8 GHz and 10*28 MHz in 7 GHz so each operator cannot achieve 4*28 MHz. Therefore we suggest keeping an individual license in 7-8 GHz.
    - Mid bands in the 15-38 GHz / 80 GHz range: there's enough spectrum to allocate the minimum channel spacing to each operator.
- Bigger Bandwidth: 112 MHz channel spacing, which is supported in 18 GHz to 38 GHz and could carry up to 1 Gbps per channel.
- Future spectrum needs: Much higher bandwidth for a backhaul network for 6G in the next 10 to 20 years is required. It is suggested to use W-band (92-114.5 GHz)/D-band (130-174.8 GHz)6 to meet this requirement, as W/D-band possesses a total 17.85 GHz and 31.8 GHz spectrum bandwidth respectively.

Considerations on the impact of other radio services to backhaul spectrum

- Mobile IMT was identified in multiple mmWave bands at WRC-19, including 26 GHz, 40 GHz, and 60 GHz. Many countries have started their plan in 26 GHz for IMT, therefore the use of 26 GHz for backhaul is decreasing.
- Similarly, 6 GHz (6425-7025 MHz) is under the WRC-23 Agenda Item 1.2 for IMT identification.
- Mid-band for IMT mobile can provide a good balance between capacity and coverage (which cannot be provided through mmWave band), thus mid-band for IMT plays and will continue playing an important role.
- We strongly encourage South Africa to support 6 GHz for IMT in WRC-23 Agenda Item 1.2, while we note that the band is currently used for backhaul in South Africa, for short links within urban areas and long links in rural areas.
- We note that some regions/countries also consider allocating the 6 GHz band(especially the lower part 5925-6425 MHz) to license-exempt use even if backhaul is an incumbent service. We suggest ICASA to participate in the ongoing studies into the licensing and use of the 6GHz band rather than rushing into licensing.
    - Care must be taken to protect the incumbent backhaul use.
    - The total amount of license-exempt devices might be huge, and the use is without control (use in outdoor environment and mobility), thus it might cause interference to backhaul links.
    - There are studies (both lab test and field test) showing such interference from license use to backhaul links.

Effective Consultation

- The SACF is concerned about the lack of effective consultation
- Publication dates, the duration of the consultation and additional parallel processes have a significant impact on the effectiveness of the consultation
- Exceedingly short notice to attend a public hearing severely impacts the participants ability to adequately prepare
- The SACF is an industry association and our work is premised on consultation with our members. Shortened timeframes inhibit us from effectively participating as it limits our ability to properly consult with our members.
- We urge to recognize this and give stakeholders adequate time to prepare

The End …. Thank you!