

Inquiry into the Long Term Spectrum Outlook in South Africa

13 April 2022



Agenda

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Introducing Policy Impact Partners (PIP)

- Policy Impact Partners (PIP) is a global consultancy platform focused on connectivity and digital policy issues, with a particular focus on advocating policies and conducting analysis that promote the efficient utilization of radio frequency spectrum.
- PIP works on behalf of several companies in the Wi-Fi ecosystem to raise awareness of the importance of Wi-Fi connectivity and the need for a balanced regulatory approach between license-exempt and licensed spectrum to address the needs of all stakeholders involved
- Since 2017, PIP, together with locally based stakeholders and client companies has been actively promoting spectrum sharing technologies and solutions including TV White Spaces, Tiered Spectrum Sharing/ Access and license-exempt access to the 6 GHz band to enable digital innovation that benefits South African citizens and industry.

Spectrum efficiency, technology and service neutrality

- PIP supports the Authority’s objective to “take into account modes of transmission and efficient utilization of the radio frequency spectrum, including allowing shared use of radio frequency spectrum when interference can be eliminated or reduced to acceptable levels as determined by the Authority”.
- Also, the National Development Plan 2030 (NDP) for South Africa emphasizes the need to “implement a service and technology-neutral flexible licensing regime” and to “free spectrum for efficient use, to drive down costs and stimulate innovation”.
- Additionally, PIP strongly supports the principle of technology and service neutrality enabling access to spectrum in a timely manner to the benefit of South Africa’s society and economy.

PIP response to specific questions

Q1: Please comment on whether the above captures the relevant regulatory and policy aspects of long term spectrum planning.

- PIP commends the Authority for incorporating the ATU spectrum recommendations in its long-term spectrum outlook.
- Some other ATU spectrum recommendations that should be implemented by the Authority include:
 - Performance of regular spectrum audits and publication of the results.
 - Making the lower 6 GHz (5925-6425 MHz) band available for license-exempt use.
- PIP also recommends ICASA to undertake coexistence studies in the upper 6 GHz band between WAS/RLAN and incumbents.

Q 3. Please comment on the above assessment of the status quo on broadband penetration in South Africa, and what role spectrum may play in addressing the gaps identified.

- With the low internet penetration in South Africa, PIP urges the Authority to take measures to extend Internet penetration and close the digital divide as soon as possible. Availability of spectrum to roll out communications services will help in closing the identified digital divide.

Q 4. What future changes, if any, should ICASA examine with regard to the existing licensing regime to better plan for innovative new technologies and applications and allow for benefits that new technology can offer, such as improved spectrum efficiency?

- PIP recommends that, in the interest of consumer protection and bridging the digital divide, the Authority considers more experimental approaches to developing regulations for innovations that will require spectrum within the scope of this long-term outlook.
- In this regard we recommend the use of regulatory sandboxes where industry players can test innovative products, services, business models and delivery mechanisms in a live environment, without having to immediately comply with all regulatory requirements

Q 5. What future emerging technologies are to be taken into consideration and which technologies will have a significant impact? When are these technologies expected to become available?

- The Authority is urged to swiftly implement the ATU Emerging Technologies Recommendation to allow license-exempt WAS/RLAN operation in the lower 6 GHz (5925-6425 MHz) band and to ensure flexibility in its spectrum outlook to allow for potential allocation of the full 1200 MHz bandwidth at 6 GHz to license-exempt technologies.

Q 7. Are there any IoT applications that will have a large impact on the existing license-exempt bands? If so, what bands will see the most impact from these applications?

- Internet of Things (IoT) is resulting in economic sectors that are deeply digitizing in order to pull data from their business operations that will enable improved outcomes . As businesses increase connectivity – adding connected devices, and sensors that utilize more wireless technology – more data becomes available that enables new insights into business operations.
- This is the direction that all enterprises are heading regardless of their sector and such a high density of devices also points to the need for more license-exempt spectrum.

Q 14. Is there a demand for more flexible frequency licensing and frequency assignment/allotments processes on a regional basis required to complement the national frequency licensing and frequency assignments/allotments in the next 10 to 20 years?

- Due to the growing demand for spectrum, PIP urges the Authority to make available the unused spectrum licensed to the national mobile operators for shared access, using Tiered Spectrum Sharing Model (TSSM), also known as Tiered Spectrum Access (TSA).
- This will help in boosting the deployment of regional, private and community networks in the country.

Q. 24 - Will the demand for commercial mobile, license-exempt, satellite, or fixed wireless services/applications impact the demand for backhaul spectrum? If so, how and which of these?

- License-exempt use of the 6 GHz band will not affect the continued use of the band for backhaul applications since license-exempt WAS/RLAN can share the band with all incumbent services.
- The ongoing studies in ITU-R WP5D will show whether IMT (commercial mobile) services can share the band with incumbent services.

Q 30. What will impact on the demand for these services/applications in the coming 10-20 years? What is the realistic demand for these services in the next 10 to 20 years? Are there adequate spectrum allocations for Broadcasting services in South Africa?

- Over 50% of South Africa's 14.5 million households now receive television content via satellite, with MultiChoice's DStv having a total of 12.2 million subscribers in September 2021. As this trend accelerates, less spectrum will be required for terrestrial television broadcasting.

Q 45. How much will spectrum management and orderly frequency planning improve the interference situations in certain frequency bands?

- There is a likelihood of high reliance on spectrum sharing technologies in the future.
- Regarding the 6 GHz band, there is little that needs to be done in the way of additional coexistence studies.
- It is, however, important to carefully consider the future opportunity for outdoor Standard Power Wi-Fi operations to support use cases in manufacturing, logistics, agriculture, rural broadband, etc.

Q 46. Please provide input on future spectrum requirements for the different service allocations as well as the urgency for such additional frequency allocations for such a service.

- The important and critical role of license-exempt technologies like Wi-Fi in furthering the 5G market cannot be underestimated, supporting the call for allocating the entire 6 GHz band to license-exempt use.
- Until 2021, there was only 455 MHz (5150-5350 MHz and 5470-5725 MHz) of mid-band spectrum available for license-exempt use in most of Europe, Middle East and Africa.
- Spectrum allocations should be sufficient to support both license-exempt and licensed technologies as they interact in important ways.

Q. 48 Please provide your organizations strategy and suggestions on how the Authority can ensure that spectrum outlook and demand studies can contribute to stimulation of the South African economy.

- PIP urges the Authority to conduct studies to determine the socio-economic value of using specific bands of interest for various applications.
- An example of such a study is one conducted by the Dynamic Spectrum Alliance (DSA) in collaboration with Telecom Advisory Services (TSA), that estimated the economic value of making the entire 6 GHz band available for license-exempt use in South Africa.

Q. 52 Due to the scarcity of high demand spectrum and the consequential fact that Spectrum Sharing in certain bands are non-negotiable, how shall you describe the best sharing conditions for the South African scenario?

- South Africa should ensure that there is sufficient spectrum available for licensed, lightly licensed and license-exempt use.
- There is need for a combination of Licensed Shared Access (LSA) and Tiered Spectrum Sharing Model (TSSM) in the licensed frequency bands as well.

Q 54. What existing license-exempt frequency bands will see the most evolution in the next five years?

- A number of countries have allowed for license-exempt access to the entire 6 GHz band to deploy Wi-Fi 6E today and Wi-Fi 7 in the near future. A good example is the USA.
- This band is expected to face the most evolution in the near future, due to its propagation characteristics that make it suitable for the next generation of Wi-Fi, proximity to the existing 5 GHz license-exempt band as well as 5G applications.

Q 55. How much spectrum, and in which bands, should be made available for license-exempt purposes (such as Wi-Fi) over the 5, 10 and 20 years? What would the costs of freeing up these bands for IMT be? What would the economic benefits of doing so be, in respect of increased consumer surplus, and increased producer surplus? Which vertical markets will require most secured licensed spectrum to overcome their current interference and congestion issues?

- PIP advocates for the full 1200 MHz of spectrum in the 6 GHz (5925-7125 MHz) band to be made available for license-exempt use. There is no cost implication attached to freeing the band.
- Allocating the entire 6 GHz band to license-exempt use will result in economic impact increasing gradually over time, eventually reaching over US\$57.76 billion or 2.58% of GDP in 2030, broken down as follows:
 - Contribution to GDP: \$34.81 billion
 - Producer Surplus: US\$13.32 billion
 - Consumer Surplus: US\$ 9.63 billion

Q 56. How much spectrum, and in which bands, should be made available for dynamic spectrum access over the next 5, 10 and 20 years? What would the costs of freeing up these bands for IMT be? What would the economic benefits of doing so be, in respect of increased consumer surplus, and increased producer surplus?

- See PIP response to question 55 for motivation to make the 6 GHz band licence exempt
- IMT spectrum - All IMT identified spectrum bands should be made available for sharing, either by TSSM or dynamically using a geolocation database

Q 57. What existing license-exempt frequency bands will see the most evolution in the next five years?

- In addition to the 6 GHz band mentioned in Q 54, there will be little evolution in the 2.4 GHz and/or 5 GHz frequency bands since the focus for license-exempt mid-band spectrum is on the 5925- 7125 MHz band going forward. This is because the 2.4 GHz and 5 GHz bands do not have sufficient bandwidth available to allow for evolution.

Q 58. Are there any IoT applications that will have a large impact on the existing license-exempt bands? If so, what bands will see the most impact from these applications?

- According to the TAS 6 GHz Economic Impact Study for South Africa, the availability of the 6 GHz band for license-exempt use to deploy Wi-Fi networks in South Africa will see a wide deployment of IoT applications in the country, cumulatively resulting in a US\$8.28 billion contribution to GDP by 2030, and a producer surplus of US\$3.68 billion over the same period.

Q 59. Will the trend for offering carrier-grade or managed Wi-Fi services continue to increase over the next five years? If so, will this impact congestion in Wi-Fi bands and which bands would be most affected?

- As the need to accelerate digital inclusion grows, Wi-Fi has been found to be one of the technologies that will help to affordably connect many people to broadband services.
- Public Wi-Fi hotspots, Wi-Fi in schools, libraries, hospitals and many other application areas are gaining momentum day by day, making Wi-Fi one of the most preferred technologies to help in closing the existing digital divide in many countries, including South Africa.

- In conclusion, PIP urges the Authority to consider all the points addressed, with a strong emphasis on making the 6 GHz band available for license-exempt use, for the purpose of deploying Wi-Fi 6E networks now, and Wi-Fi 7 networks in the future.
- A balanced mix of licensed, partly licensed and license exempt access to various spectrum bands would help South Africa realize accelerated closure of the existing digital divide.
- To create a digitally inclusive society in the future, affordability is key, which can be achieved by stepping up deployment of community networks, using partly licensed or license-exempt spectrum.
- Due to the scarcity of frequency spectrum, spectrum sharing is inevitable. PIP urges the Authority to avail more spectrum for shared access.
- PIP further urges the Authority to consider implementing a regulatory sandbox regime to allow industry stakeholders to test innovative products, services, business models and delivery mechanisms in a live environment, without having to immediately comply with all regulatory requirements

END

Thank You

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