

May 12, 2023

Ms. Pumla Ntshalintshali
Independent Communications Authority of South Africa
350 Witch-Hazel Road
Eco- Park; Centurion

Re: Draft Consultation Document on Dynamic Spectrum Sharing framework beyond TVWS

Dear Ms. Ntshalintshali -

The Dynamic Spectrum Alliance (DSA)¹ respectfully submits these comments to the Independent Communications Authority of South Africa (ICASA) in response to the “Draft Consultation Document on Dynamic Spectrum Sharing framework beyond TVWS” (Discussion Document).² We appreciate the opportunity to offer our perspectives on how ICASA can implement dynamic spectrum sharing “to promote the emergence of new radio technologies, services and applications of the digital industrial revolutions and more importantly improving efficient use of radio frequency spectrum.”³

The DSA welcomes ICASA’s efforts to ensure there is “universally available and affordable broadband connectivity to all South Africans.” We fully agree that “wireless networks play a critical role in the provision of ICT services in the country of which availability of spectrum is a key enabler.”⁴ We further agree that “[f]lexible spectrum management regulatory frameworks and practices are the key ingredients to cater for the exponential growth of broadband users and demand of data-hungry wireless services and applications fueled by the advent of rapid advances in wireless technologies.”⁵ While we understand the most South Africans today access the internet over mobile handsets, the DSA believes that over time there will be growth in the number of households that access broadband over wireline and wireless fixed Internet connections.

The DSA and our members work with regulatory authorities around the world to promote new and innovative approaches to spectrum management to increase spectrum access options and extend connectivity. Such innovative approaches include the adoption of new licensing frameworks that

¹ The DSA is a global, cross-industry, not for profit organization advocating for laws, regulations, and economic best practices that will lead to more efficient utilization of spectrum, fostering innovation and affordable connectivity for all. Our membership spans multinationals, small-and medium-sized enterprises, as well as academic, research and other organizations from around the world all working to create innovative solutions that will benefit consumers and businesses alike by making spectrum abundant through dynamic spectrum sharing. A full list of DSA members is available on the DSA’s website at dynamicspectrumalliance.org/members.

² Available at https://www.gov.za/sites/default/files/gcis_document/202304/48352gon3242.pdf.

³ Discussion Document at 6.

⁴ Id. at 9.

⁵ Id at 11.

incorporate licensed, license-exempt, and license-by-rule (lightly-licensed) access options. In addition, the DSA promotes the use of automated dynamic spectrum management systems (DSMS) to make more efficient use of spectrum and support a wide range of commercial services, including wide-area mobile and fixed broadband networks, as well as local and private networks, use cases and applications. We believe that these concepts and tools should be key components of ICASA’s strategy to “improve spectrum utilization efficiency by providing more opportunities for network operators to expand network infrastructure, deployment of innovative applications and services by new entrants and more broadly for easing of the perceived spectrum crunch.”⁶

The DSA and our members are available to discuss these comments and provide any additional information and insights on dynamic spectrum management and how it can assist ICASA in its efforts to increase spectrum access options in the 3.3 - 7 GHz (S and C) bands.



Respectfully submitted,

Martha SUAREZ
President
Dynamic Spectrum Alliance

⁶ Discussion Document at 12.

DSA COMMENTS

I. Introduction to the DSA and Automated Dynamic Spectrum Management Systems

Today, we have the technical capability to automate frequency coordination, which lowers transaction costs, uses spectrum more efficiently, speeds time-to-market for new services, protects incumbents from harmful interference with greater certainty, and generally expands the supply of spectrum for wireless connectivity that is fast becoming, like electricity, a critical input for most industries and economic activity.

To maximize the efficient use of spectrum and provide a variety of access options, the DSA recommends that regulators worldwide implement automated Dynamic Spectrum Management System (DSMS) solutions and innovative licensing frameworks. In the whitepaper entitled “Automated Frequency Coordination - An established tool for modern spectrum management,”⁷ the DSA explains that the use of databases and other informing capabilities to coordinate spectrum assignments has evolved significantly since its first introduction, but at its heart, is nothing new. The basic steps are the same as in a manual coordination process or where a regulator assesses the opportunities for local licensing on a case-by-case basis. The developments driving DSMS include:

- Surging consumer demand for wireless connectivity leading to the need to intensively share underutilized frequency bands;
- Significant improvements in the computation power to run advanced propagation analysis efficiently and rapidly and coordinate devices and users in near real-time; and
- Availability of more agile wireless equipment that can interact directly with dynamic frequency coordination databases.

Automated DSMS tools, such as those developed for the TV White Spaces (TVWS), the 3.5 GHz Citizens Broadband Radio Service (CBRS) in the United States, and for license-exempt devices operating in the 6 GHz Band at Standard Power, share similarities. Technical and service rules for incumbent operations and new entrants are converted into algorithms, which are used together with information obtained via a database query or other informing capability to provide a list of available channels and maximum power for that location back to a device seeking to access the band. Differences between the automated DSMS tools for the TVWS,

⁷ Available at http://dynamicspectrumalliance.org/wp-content/uploads/2019/03/DSA_DB-Report_Final_03122019.pdf.

CBRS, and the 6 GHz bands are driven by the type of incumbent operations that require protection in each band.

The DSA anticipates that regulatory authorities worldwide will need to rely increasingly on automated DSMS tools to handle surging demand for wireless connectivity by sharing underutilized frequency bands. Significant improvements in computation power are enabling more efficient and rapid advanced propagation analysis capability, which in turn enables coordination of devices and users in what is close to real-time. Application of artificial intelligence techniques, such as machine learning for spectrum sensing and for signal classification, also can support improved spectrum management.⁸ In addition, more agile wireless equipment is being developed that can interact directly with DSMS tools, increasing opportunities for even greater efficiency and scale.

A) Automated Spectrum Sharing in the U.S. 3.5 GHz CBRS Band

One of the best examples of a successful implementation of an automated DSMS and novel licensing framework is the U.S. 3.5 GHz CBRS band (3550-3700 MHz). Since the Federal Communications Commission (FCC) authorized commercial CBRS operations in January 2020, CBRS has been a shining example of the myriad benefits of automated spectrum sharing.

Under the CBRS regulatory framework, the Spectrum Access System (SAS) coordinates CBRS frequency use and manages coexistence among the three tiers of access:

- 1) Incumbent (e.g., navy radar and commercial fixed satellite services);
- 2) Priority access license (PAL); and
- 3) General authorized access (GAA).

An environmental sensing capability (ESC) network detects incumbent naval radar use of the band and alerts the SAS to move new terrestrial commercial operations to non-interfering channels. The SAS also interfaces with the FCC's Universal Licensing System (ULS) to obtain information about fixed satellite service (FSS) incumbents and grandfathered fixed wireless systems. Using this information, the SAS can calculate aggregate interference from new commercial users to incumbents and enforce protection of these systems. In the more than three years of commercial operational experience, no incumbents have reported interference from new CBRS users, demonstrating the effectiveness of SAS management of the band.

⁸ Body of European Regulators for Electronic Communications (BEREC), "Draft - BEREC Report on the impact of Artificial Intelligence (AI) solutions in the telecommunications sector on regulation," BoR (22) 191, Dec. 2022, pages 24-26. [Microsoft Word - BoR \(22\) 191 Draft Report on challenges and benefits of Artificial Intelligence \(AI\) solutions in the telecomm \(europa.eu\)](https://www.europecommunications.europa.eu/Word-BoR-22-191-Draft-Report-on-challenges-and-benefits-of-Artificial-Intelligence-AI-solutions-in-the-telecomm).

Commercial users in the CBRS band have multiple options for accessing this 150 MHz of spectrum:

- Acquisition of a PAL in the FCC’s 2020 CBRS auction where use-or-share rights for county-based licenses were made available;
- Use of the GAA tier, which does not require an individual license to operate, but does require use of certified equipment and connectivity to a SAS to receive a spectrum grant for operations with a particular transmit power and antenna orientation at a specific location and height; or
- Leased rights from a PAL license holder.

Based on the type of device (i.e., base station category), license status (PAL or GAA), geo-coordinates and height, operating parameters, and incumbent protection criteria, the SAS calculation engine determines the list of available channels and maximum permissible radiated power for that specific device.

As described above, the SAS not only coordinates protection of incumbent users from new commercial operations, but also manages the assignment of frequencies to PAL and GAA users, protection of PAL operations, and co-existence among GAA users to maximize spectrum efficiency and provide deterministic access for all users. The automated SAS process provides near real-time management of the CBRS band, speeding time-to-market while minimizing uncertainty and administrative burdens.

Through this automation of shared spectrum, a whole host of new services has emerged. In addition to densification of the nationwide public mobile networks, and use of these frequencies by rural wireless Internet service providers (WISPs), a wide variety of private networks are also using the CBRS band. From business to leisure, hundreds of smart office, airport and stadium private networks have been deployed using CBRS as the result of having access to spectrum without the need for an individual license. In fact, today there are over 330,000 CBRS cell sites deployed across the United States, with the vast majority using the GAA tier.

Examples of such private wireless network deployments using the CBRS GAA tier include:

Military logistics:

<https://www.fiercewireless.com/private-wireless/federated-demo-dod-highlights-benefits-shared-spectrum>

Energy management:

<https://www.fiercewireless.com/private-wireless/schneider-electric-adds-private-wireless-smart-factories>

Retail:

<https://www.druidsoftware.com/2019/11/15/cbrs-ongo-at-american-dream-entertainment-retail-complex-nj-usa/>

Municipal government:

<https://www.fiercewireless.com/private-wireless/motorola-and-harris-county-build-private-lte-network>

<https://www.fiercewireless.com/private-wireless/cox-launches-cbrs-pilot-city-las-vegas>

Transportation:

<https://www.fiercewireless.com/wireless/boingo-deploys-trial-cbrs-network-at-dallas-love-field-airport>

Education:

https://www.csrwire.com/press_releases/747561-private-wireless-helps-schools-close-digital-divide

<https://www.fiercewireless.com/private-wireless/fort-worth-isd-builds-sustainable-cbrs-network>

<https://www.fiercewireless.com/private-wireless/samsung-amdocs-deploy-private-cbrs-network-howard-university>

Entertainment:

<https://inbuildingtech.com/venues/connectivity-wireless-jma-stadium-cbrs/>

Hospitality:

<https://www.thefastmode.com/technology-solutions/24585-airspan-networks-deploys-5g-cbrs-private-network-for-hospitality-industry>

Manufacturing warehouse/supply chain:

<https://www.fiercewireless.com/private-wireless/calchip-connect-emerges-key-player-private-wireless>

<https://www.fiercewireless.com/private-wireless/mxd-adds-second-private-wireless-network>

Agriculture:

<https://www.fiercewireless.com/private-wireless/three-day-deployment-makes-tractors-autonomous>

<https://enterpriseiotinsights.com/20220607/smart-farm/how-robot-tractors-and-a-private-network-came-together-at-a-smart-vineyard>

B. Automated Frequency Coordination Unlicensed Standard Power Devices in the 6 GHz Band

Another notable example of automated spectrum sharing is in the 6 GHz Band, where regulators worldwide are enabling license-exempt WLAN/RLAN use on a shared basis with incumbent services using the following approach:

- 1) Authorizing up to 1200 MHz (5925-7125 MHz) of the 6 GHz Band for unlicensed use; and
- 2) Authorizing one or more of the following categories of unlicensed devices:
 - (i) Very Low Power (VLP) devices across the entire authorized frequency range
 - (ii) Low Power Indoor (LPI) devices across the entire authorized frequency range, and
 - (iii) Standard Power (SP) devices that can operate both outdoors and indoors under the coordination of an automated database management system, known as the Automated Frequency Coordinator (AFC), where the authorized frequency range depends on the nature of the incumbents.

Several countries are actively deploying LPI devices on a license-exempt,⁹ shared basis in the 6 GHz Band, leveraging wider channel availability (up to 160 MHz with Wi-Fi 6E) to increase spectrum efficiency while maintaining the ability to share spectrum with incumbents and other unlicensed deployments. In the future, Wi-Fi 7 will be able to accommodate 320 MHz channels, which will further improve latency, throughput, reliability, and quality of service.

For SP operations, AFC systems have been designed to provide channel availability information to license-exempt devices, while ensuring that incumbent systems, including fixed point-to-point microwave links, are protected from interference. When an authorized and authenticated SP device queries an AFC for spectrum availability, the AFC will assess which incumbent fixed link receivers have the potential to receive excess energy from the license-exempt SP device based on its location and potential transmit power. The AFC calculates the maximum transmit power for that device's location on each 6 GHz channel and provides a list of options for the device to select. The device must check in with the AFC daily to determine if any changes to incumbent use of the band have occurred that would alter the channel and transmit power options available to it.

⁹ While the U.S. and some other countries use the term unlicensed spectrum, other countries use terms such as license-exempt, license-free, or free spectrum to describe a similar concept.

Building on the experience and lessons learned from the use of SAS in the CBRS band and TVWS database described below, several DSA members have developed AFC systems for the 6 GHz Band and have applied to become AFC system operators in the United States and Canada. It is expected that the FCC and the Canadian telecommunications regulator, Innovation, Science And Economic Development Canada (ISED), will certify multiple AFC system operators and permit unlicensed SP devices to begin using the 6 GHz band in 2023. DSA anticipates that many of these same AFC system developers will also seek to operate in other countries, such as Brazil, Korea, and Saudi Arabia, that are in the process of finalizing their regulations for AFCs that will provide access to unlicensed SP devices seeking to operate in the 6 GHz Band.

C. TV White Spaces

A third example of an automated DSMS capability, one that pre-dates both the SAS and AFC, is in the TVWS, where automated spectrum management systems – TVWS databases -- facilitate unlicensed access to unassigned and unused TV band channels. Rules governing database-coordinated access to TVWS for fixed and personal/portable devices were finalized in 2008 by the FCC and have been updated several times. Similar regulations have been adopted by a growing list of countries since then.

TVWS database systems ingest current technical and operational parameters on incumbents (e.g., broadcast television stations, radio astronomy facilities, wireless medical telemetry service facilities, and others) operating in the broadcast TV bands from the regulatory authority's licensing databases. The TVWS database also receives additional information regarding 'reservations' for licensed wireless microphones operations made via an online portal, where applicable, and combine this with geolocation information and operating parameters received from the TVWS devices. Upon query, the TVWS device receives a list of available channels and the maximum power of each available channel at that location from the TVWS database.

II. DSA Responses to the ICASA Discussion Questions

Question 1 - If you are an active ECNS, ECS license holder, what is your market size and how many customers are currently using your services? Please provide supporting information.

Comment:

As mentioned above, the DSA is a global, cross-industry, not for profit organization advocating for laws, regulations, and economic best practices that will lead to more efficient utilization of spectrum, fostering innovation and affordable connectivity for all. Our membership spans multinationals, small-and medium-sized enterprises, as well as academic, research and other

organizations from around the world all working to create innovative solutions that will benefit consumers and businesses alike by making spectrum abundant through dynamic spectrum sharing. The DSA does not provide broadband services; however, several of our members are broadband service providers and other members develop technologies and services to support wireless broadband services globally.

Question 2 - Which industries use your services extensively?

Comment:

Please see response to Question 1 above.

Question 3 - Which specific frequency bands are you particularly interested in, within the 3 GHz to 7 GHz range, that you would like the Authority to consider for the implementation of DSS approach?

Comment:

In the Discussion Document, ICASA describes DSS as “an advanced form of spectrum sharing categorized under the light-managed spectrum management regime.”¹⁰ ICASA further states that DSS includes both technology-dependent and technology-agnostic techniques. For example, the TVWS DSS approach uses technology-agnostic techniques over license-exempt spectrum in the broadcast TV bands. The DSA agrees with the description of DSS techniques, and notes that DSMS tools, which overlap with DSS techniques, can also be used to manage access to frequency bands where there are various combinations of licensed, lightly-licensed (also referred to as licensed-by-rule), and license-exempt technologies.

With this in mind, the DSA recommends that ICASA consider implementing spectrum sharing frameworks supported by DSMS technology and tools in the 3.3-4.2 GHz and 5925-7125 GHz (6 GHz) bands. As mentioned above, DSMS tools, including the 3.5 GHz SAS and 6 GHz AFC, are already being used to enable more efficient use of spectrum and are increasing access options for the latest iterations of broadband technologies, including 5G and Wi-Fi 6E.

While the DSA believes a DSS approach can support the creation of locally-licensed private 4G and 5G networks in the 3.3-4.2 GHz band, the DSA does not support a licensed approach together with DSS for the 6 GHz band. Instead, the DSA encourages ICASA to make the entire 6 GHz band available for license-exempt use by three categories of devices – LPI, VLP (indoor / outdoor), and SP (indoor / outdoor) under control of an AFC system.

¹⁰ Discussion Document at 14.

ICASA’s consultation, “Notice of Intention to Amend Annexure B of the Radio Frequency Spectrum Amendment Regulations, 2021,” was a good initial step. The consultation proposed adding the 5925-6425 MHz frequency range to Annexure B.¹¹ The DSA filed comments in response to the consultation.¹² We look forward to working with the ICASA on next steps, including expanding license-exempt operations to 6425-7125 MHz and adopting rules to permit SP devices under management of an AFC system across the entire 6 GHz band.

License-exempt operations in the 6 GHz band can accelerate the digital transformation in South Africa and can foster the development of a WISP ecosystem that can provide broadband fixed wireless access to South Africans and help to close the digital divide. In 2021, the DSA published an economic study conducted by Telkom Advisory Services entitled, *Assessing the economic value of unlicensed use of the 6 GHz band in South Africa*, that estimated the cumulative economic value of allocating all 1200 MHz in 6 GHz band to license-exempt use through 2030 - \$ 57.76 billion USD.¹³

Question 4 - Do you currently use or intend to use unlicensed spectrum such as TVWS and the ISM band in your services?

Comment:

As mentioned above, the DSA does not provide broadband services.

Question 5 - What has the impact of the existing static radio frequency spectrum assignment regime been on your business?

Comment:

The DSA does not provide broadband services. However, we work closely with service providers, including WISPs, that note the difficulties associated with accessing spectrum on an affordable basis under traditional exclusively licensed approaches to support their broadband service offerings, particularly to unserved and/or under-served populations and areas. Our members also support the efforts of numerous private wireless users that have been historically unable to access spectrum to support their particular use case and geographic requirements under traditional licensing approaches. With the introduction of shared licensing frameworks, such as CBRS and 6 GHz, the spectrum access needs of these users are now being met.

¹¹ See <https://www.icasa.org.za/legislation-and-regulations/notice-of-intention-to-amend-annexure-b-of-the-radio-frequency-spectrum-amendment-regulations-2021>.

¹² [DSA-Comments-to-ICASA-on-RF-Spectrum-Amendment-Regulations.pdf \(dynamicspectrumalliance.org\)](#).

¹³ [Assessment of 6 GHz in South Africa, v1.docx \(dynamicspectrumalliance.org\)](#).

Question 6 - What kind of DSS approaches or a combination thereof (i.e., USSF), described above would you prefer to be considered by the Authority to enable sharing within the 3 – 7 GHz band? Motivate your response with reasons and examples if relevant.

Comment:

The DSA encourages ICASA to implement both innovative licensing frameworks and DSMS tools and technologies to expedite and streamline sharing of currently occupied bands. Innovative licensing frameworks include licensed, lightly-licensed, and license-exempt access options.

For licensed/lightly-licensed spectrum bands, the DSA recommends considering tiered approaches that offer protection for incumbent services while also offering multiple access options for new users. These automated DSMS solutions and tiered licensing approaches need not be complex. Rather, they need only ensure protection of incumbents and enable the type (or types) of spectrum sharing desired by policy. Ideally, simple automated DSMS and licensing approaches are preferable.

The simplest model is a two-tier model, whereby new entrants must protect incumbent users. An example of this is the 6 GHz band where license-exempt operations cannot cause harmful interference to licensed operations and cannot seek protection from interference. Depending on the incumbent services in the desired band, a two-tier system where opportunistic users operating under a lightly-licensed regime would have to protect incumbent operations could work as well.¹⁴

Another model the DSA supports is a three-tier sharing framework, much like that used for CBRS in the 3 GHz band:

Tier 1 – **Incumbent users** operating in the band have the highest priority in accessing spectrum, with their access always guaranteed during their operations so that their radio equipment need not be aware of other operations sharing the band.

Tier 2 – **Licensed new users** require a degree of certainty in accessing spectrum. To ensure sharing of the band with this tier of users, it is fundamental that the operation of incumbent services is well understood (e.g., operate only in certain areas) and is predictable (e.g., operate at certain times or otherwise offer information about when spectrum needs to be vacated). If such information is not accurate enough or unavailable, then access to the band for Tier 2 users might be greatly reduced or impossible. A use-or-share requirement for licensed spectrum is also important to ensure that spectrum use is maximized.

¹⁴ Note that over a decade ago concepts such as License Shared Access and Authorized Shared Access (LSA/ASA) were introduced as a potential two-tier sharing models between IMT systems and incumbents that obtained their spectrum through non-commercial means (e.g., Federal spectrum users). LSA/ASA was proposed as an alternative to the three-tier CBRS frameworks but did not allow for opportunistic use. LSA/ASA never took root.

Tier 3 – **Opportunistic users** can access spectrum on a license-exempt or licensed-by-rule basis. These users may not need access to spectrum over a larger geographic area, may be operating indoors or on a campus, or may be operating in more remote areas where spectrum usage will not be as competitive. In many cases, such networks are deployed in very remote areas where spectrum is largely unused and the risk of interference to higher-tier users is negligible. There might be other cases where there is sufficient spectrum available and the envisioned applications allow QoS flexibility, for example because the band is used to provide additional capacity to networks using other anchor frequencies. In such cases, it is conceivable to have a third tier of users with minimal regulatory barriers and no need for interference protection from other Tier 3 users.

Question 7 - Which category of wireless network operators would you prefer a dynamic spectrum sharing regime be applicable to? Motivate your response with reasons and examples if relevant.

Options: Small operators with no dominant market share, Established operators with dominant market share, rural and township operators, All operators

Comment:

The DSA supports increasing access options for all broadband network operators as well as for private wireless network users. As mentioned above, the CBRS shared access framework supports a wide range of new and expanded broadband services, including nationwide public mobile networks, multiple system operators (cable companies), rural WISPs, and a wide variety of private networks. The use of DSMS tools and innovative licensing frameworks will spur the introduction of new competitive service offerings and make connectivity more affordable and accessible.

Question 8 - When would you like to see a dynamic spectrum sharing regime been introduced in South Africa? Motivate your response with reasons and examples if relevant.

Options: Immediately, in 1 year time, in 2 to 3 years' time, in 5 years' time, there is no need for it

Comment:

The DSA recommends that ICASA consider implementing shared access licensing frameworks and DSMS tools as soon as possible (within one year). There are multiple commercially available DSMS solutions that will enable increased access to both the 3.3-4.2 GHz and 6 GHz bands. These tools have been proven to ensure protection of incumbent services, including

military radars, fixed satellite services, fixed point-to-point microwave links, point-to-multipoint services, amongst others. The DSA encourages ICASA to introduce these capabilities to the S and C bands as quickly as possible.

Question 9 - How often do you need new spectrum assignment for your business?

Comment:

The DSA does not provide broadband services. However, from our work with a variety of broadband service providers and private wireless users, we recognize the continual need for additional spectrum to support the deployment of the latest generation of broadband technologies, including 5G and Wi-Fi 6E and their successors.

Question 10 - Would you prefer a dynamic spectrum sharing market exchange platform to be introduced, and in which frequency band(s)? Motivate your response with reasons and examples if relevant.

Comment:

The DSA commends ICASA for its consideration of a regulatory framework that will support a dynamic secondary market for spectrum in the 3.3-4.2 GHz bands. We appreciate ICASA's recognition of DSA member, Federated Wireless, Inc, and its secondary market platform that facilitates leasing of CBRS PAL spectrum.¹⁵ By way of background, when it established the CBRS rules, the FCC adopted a streamlined leasing process for PAL spectrum, certifying a number of SAS administrators, including Federated Wireless, Inc., to use their cloud-based DSMS platforms in conjunction with the FCC's ULS to process lease applications in near real-time.¹⁶ The DSA encourages ICASA to consider adopting similar rules for licensed bands and to allow commercial DSMS solution providers to work with licensees and prospective lessees to develop a streamlined secondary market for licensed spectrum.

With regard to the 6 GHz band, the DSA strongly believes that the entire 1200 MHz should be made available to different categories of licensed-exempt devices. As such, we do not see the need for a dynamic secondary market for spectrum in the 6 GHz band. We do strongly support, though, the use of a DSMS platform such as an AFC to manage access to the band for license-exempt SP devices, while protecting incumbent fixed service operations.

Question 11 - Are you willing to dynamically share/or lease part of your spectrum assignment?

Motivate your response with reasons and examples if relevant.

¹⁵ Discussion Document at 21.

¹⁶ See <https://www.fcc.gov/wireless/bureau-divisions/mobility-division/35-ghz-band/35-ghz-band-overview#secondary-markets-for-priority-access-licenses>.

Comment:

The DSA does not provide broadband services and cannot comment on this question.

Question 12 - What kind of dynamic spectrum lease and trading regime would you prefer: spectrum leasing and trading of licensed spectrum among operators or spectrum leasing and trading of unlicensed spectrum by the Authority? Motivate your response with reasons and examples if relevant.

Comment:

The DSA recommends that ICASA consider streamlined secondary market rights for licensed spectrum. For example, license conditions might include the right for the license holder to lease the spectrum to other users – whether on a geographic basis (partitioning) or by subdividing the spectrum (disaggregating). Such a secondary market can drive innovation, allow new technology to be deployed by leased spectrum users, and support various sectors, such as enterprise networks and industrial uses.

The DSA also recommends that ICASA consider implementing a “use-it-or-share-it” policy for licensed bands. Conceptually, use-it-or-share-it rules authorize opportunistic access to licensed spectrum that is locally unused or underutilized. Until the spectrum is actually put to use in a local area, it should be available for non-interfering use by networks and devices. Licensees lose no rights whatsoever.

A general use-it-or-share-it authorization has a number of affirmative benefits. First, opportunistic access reduces spectrum warehousing in areas where the economics are least attractive for large service providers. It might increase access for operators that are interested in deploying, but who lack needed spectrum access in that local area.

Second, opportunistic access further encourages secondary market transactions by facilitating price discovery on both the supply and demand side. For licensees, it will both identify users interested in a potential lease or partition and provide information on the potential value (i.e., how much is my spectrum worth?). For users, opportunistic use is an opportunity to test the local market and to determine the value of a more secure, longer-term lease or partition agreement (i.e., how much am I willing to pay for spectrum?).

Third, opportunistic access will lower barriers to entry for innovative new use cases by parties that at least initially either cannot afford or do not believe they need to pay for exclusive use and interference protection. The option to deploy, at least initially, without committing to the cost of a long-term lease or license could be particularly useful for small providers and industries.

Question 13 - Would you prefer the dynamic spectrum lease and trading price to be determined by the market or set by the Authority? Motivate your response with reasons and examples if relevant.

Comment:

The DSA recommends that ICASA allow the market to determine spectrum lease and trading prices.

Question 14 - What would you prefer to be the minimum and maximum dynamic spectrum lease periods? Motivate your response with reasons and examples if relevant.

Comment:

The DSA recommends that ICASA allow the market to determine the appropriate duration for spectrum leases based on the needs of lessors and lessees.

III. Conclusion

The DSA appreciates the opportunity to provide input on ICASA's Discussion Document. We believe that innovative licensing frameworks, spectrum sharing, and automated DSMS solutions can help ICASA promote the emergence of new radio technologies, services and applications and improve efficient use of radio frequency spectrum. DSMS solutions lower transaction costs, ensure that spectrum is used more efficiently, speed time-to-market for new services, protect incumbents from interference with greater certainty, and generally expand the supply of wireless connectivity that is fast becoming, like electricity, a critical input for most industries and economic activity. The DSA and our members stand ready to work with ICASA to build on the success of existing spectrum sharing frameworks, improve spectrum efficiency, spur the deployment of innovative applications and services by new entrants, and ease the perceived spectrum crunch.