

# Cambium Networks

## Response to the ACCC consultation paper on allocation limits for 3.4 GHz and 3.7 GHz band allocation - March 2022

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## 1. EXECUTIVE SUMMARY

Cambium Networks appreciates the opportunity to respond to the ACCC consultation paper on allocation limits for 3.4 GHz and 3.7 GHz band allocation - March 2022

Cambium Networks is a leading vendor of wireless products. Fixed Wireless products, that support Point to Multipoint and Point to Point in the 900MHz, 2.4GHz, 3.3 GHz to 4.2GHz, 4.9 GHz to 7GHz, 28GHz, 60GHz bands for Broadband Wireless Access (BWA), 6-38 GHz, 60GHz, and 80GHz for PTP Fixed Microwave band, narrowband IoT SCADA solutions and Cloud Managed Wi-Fi and Ethernet switches.

Our response to this consultation paper is based on our knowledge and experience gained in other geographies using these bands and also with the knowledge of the capabilities of our solutions that operate in these bands today.

We also note the ACCC consultation extends more broadly across all the activities/consultations in the 3.4-4.2 GHz band and hence our response also addresses the broader set of needs and recommendations across these frequency bands and not just allocation of spectrum licenses in the 3.4-3.7GHz band.

Cambium Networks also, welcomes the progress made so far and also the recognition of the value of licensed spectrum for Private Enterprise, Smart City/Local Government and Service Provider (WISP) Fixed Wireless networks.

We also note that this consultation relates primarily to Spectrum Licencing allocation which limits the application to mobile broadband and limits the use by others for innovative applications including reliable communication for SMART Cities, ITS and also general Fixed Wireless enterprise connectivity which is better suited to Apparatus licencing.

Whilst we value the work being done to allocate spectrum in the 3.4-4.0 GHz bands via Apparatus Licenses in remote and rural areas, the ACCC should pay careful attention to the lack of licensed mid-band spectrum to support applications other than mobile broadband in Metro, Urban and Regional areas and as a result may well miss some key objectives of the MPS.

Perhaps a Dynamic Spectrum Licencing model should be explored to derive BEST value for this spectrum?

## 2. INTRODUCTION TO CAMBIUM NETWORKS

At Cambium Networks, we support the communications of life for millions of people around the world and connect enterprise networks where other options cannot. No matter what the conditions or locations, wherever people or networks need to be connected, our wireless broadband solutions deliver clear voice, data and video communications people and networks can rely on.

Our Mission is Connecting the Unconnected and delivering solutions and technology that Bridge the Digital Divide.

Cambium Networks provides professional grade fixed wireless broadband, microwave, narrowband IoT and more recently Wi-Fi solutions. Our solutions are deployed in thousands of networks in over 150 countries, with our innovative technologies providing reliable, secure, cost-effective connectivity that's easy to deploy and proven to deliver outstanding performance metrics. To date Cambium Networks has delivered over eight million radio devices, a count that continues to accelerate year-over-year.

Cambium Networks are proven, respected leaders in the wireless broadband industry. We design, deploy and deliver innovative data, voice, and video connectivity solutions, through a qualified channel of distributors, Wireless Internet Service Providers, Telecommunications Companies, Value Added Resellers and System Integrators. Our solutions enable and ensure the communications of life, empowering personal, commercial, and community growth virtually everywhere in the world.

Following ten-years as a business unit within Motorola Solutions, Inc. Cambium Networks was established in Oct 2011 following divestiture from Motorola Solutions. In July 2019 Cambium Networks was listed on the NASDAQ trading as a public company, CMBM.

### 3. ISSUES FOR COMMENT

#### 3.1.1. WHAT ARE THE LIKELY INTENDED USES OF SPECTRUM IN THE 3.4 GHZ AND 3.7 GHZ BANDS IN METRO AND REGIONAL AREAS?

Today, application in the 3.4GHz and 3.7GHz band is purely mobile broadband, based on the spectrum licensing model. Applications today would/could also be for ITS, CCTV backhaul, Smart City connectivity, including longer range enterprise links for local government inter office communications, Wi-Fi backhaul and other IoT applications. if suitable cost effective area wide spectrum was available in metro and regional areas.

#### 3.1.2. IF YOU INTEND TO ACQUIRE THE SPECTRUM TO DEPLOY WIRELESS SERVICES:

##### 3.1.2.1. IN WHICH GEOGRAPHIC AREAS DO YOU INTEND TO USE THE SPECTRUM?

Cambium sell products via distribution to integrators, mining companies, security contractors and service providers nationally. So application and opportunity to using licensed spectrum for fixed wireless applications in metro and regional areas is national.

**3.1.2.2. WHAT DO YOU CONSIDER IS THE OPTIMAL ALLOCATION OF 3.4–4.0 GHz SPECTRUM TO SUPPORT YOUR LIKELY INTENDED USES? WHAT IS THE MINIMUM ALLOCATION NECESSARY?**

Dual 10MHz, 20MHz and 40MHz channels would be good options to have in Metro and Regional areas to support ITS, CCTV backhaul, Smart City and enterprise/campus/area wide BWA solutions. In Remote/Rural dual 40MHz channels and also on remote mine sites dual 20MHz or dual 40MHz channels are recommended. We would expect this to be in the 3.7 to 4.0 GHz bands.

**3.1.3. HOW IS THE SPECTRUM LICENSING ARRANGEMENT AND THE INTENDED USE OF PRICE-BASED ALLOCATION LIKELY TO IMPACT YOUR DEMAND FOR SPECTRUM AT THIS ALLOCATION?**

It is restrictive and limiting to mobile broadband providers (Telstra, Optus and TPG) to support non standalone 5G only. Which is OK, if spectrum in the upper part of the band (3.7 GHz-4.0 GHz) is made available in Metro and Urban areas for other applications contemplated by the minister

On 1 February 2022, the Minister for Communications, Urban Infrastructure, Cities and the Arts (the Minister) issued a Ministerial Policy Statement (MPS) under subsection 28B(1) of the *Radiocommunications Act 1992*, which sets out the relevant communications policy objectives of the Commonwealth Government with respect to the allocation of spectrum in the 3.4–4.0 GHz band.<sup>4</sup> The ACMA must have regard to this MPS in performing its spectrum management functions and exercising its spectrum management powers in relation to the 3.4–4.0 GHz band.<sup>5</sup> The ACCC considers that it is appropriate to have regard to the communications policy objectives set out in this MPS, where relevant, in assessing the need for allocation limits for the purpose of this advice.

**3.1.4. HOW IS THE TERM OF THE SPECTRUM LICENCES LIKELY TO IMPACT YOUR DEMAND FOR SPECTRUM AT THIS ALLOCATION?**

Spectrum licensing is limiting for smaller service providers and enterprise fixed wireless applications.

**3.1.5. HOW IS THE DIFFERING UTILITY OF THE URBAN EXCISE SPECTRUM LIKELY TO IMPACT YOUR DEMAND FOR SPECTRUM AT THIS ALLOCATION?**

Spectrum licensing is restrictive to all except MNOs.

**3.1.6. WHAT ARE THE RELEVANT DOWNSTREAM MARKETS FOR THE PURPOSE OF ASSESSING THE IMPACT OF THE 3.4 GHZ AND 3.7 GHZ BANDS ALLOCATION ON COMPETITION?**

There is limited opportunity for supporting enterprise applications in this band. The costing model applied to the spectrum licensing based on population density, limits the use of the spectrum by most smaller service providers and enterprises alike. Broadband wireless internet service providers should not be negatively impacted as they provide quality high speed services to consumers and enterprise markets where there are limitations. There needs to be allocation of AWL in the 3.7 to 4.0 bands to allow for others to participate.

**3.1.7. ARE THERE LIKELY TO BE FUTURE RELEVANT MARKETS THAT HAVE NOT BEEN IDENTIFIED?**

Yes, we see constant innovation taking place with the need for reliable connectivity supported by licensed spectrum. Smart parking, CCTV, Smart City, WiFi backhaul, BWA are current markets in need of licensed spectrum and as in the US, CBRS under a Dynamic Spectrum Licensing model was referred to the Innovation band. We are also seeing emerging technology in the 3.3-4.2 GHz bands that support MU-MIMO that will allow for effective metro and regional BWA.

**3.1.8. DO YOU HAVE ANY COMMENT ON THE STATE OF COMPETITION IN THE RELEVANT DOWNSTREAM MARKETS THAT YOU CONSIDER SHOULD BE TAKEN INTO ACCOUNT? WHAT DO YOU THINK ARE THE KEY COMPETITION ISSUES ARISING FROM THE 3.4 GHZ AND 3.7 GHZ BANDS ALLOCATION IN THESE DOWNSTREAM MARKETS?**

The current planned allocation is limiting as discussed above. There is little or no opportunity for downstream markets to develop, due to the lack of cost effective licensed spectrum in the mid-band.

**3.1.9. HOW WOULD THE ALLOCATION OF SPECTRUM LICENCES IN THE 3.4 GHZ AND 3.7 GHZ BANDS IN METROPOLITAN AND REGIONAL AREAS IMPACT COMPETITION AND INVESTMENT IN THESE MARKETS?**

They are restrictive to the ideals of the MPS! Provision for AWL licenses in 3.7 to 4.0 must be considered. Spectrum licensing is limited to MNOs and is hence restrictive and limits competition completely.

**3.1.10. SHOULD EXISTING SPECTRUM HOLDINGS IN THE 3.4–4.0 GHZ BAND BE CONSIDERED IN THE ACCC’S ASSESSMENT OF ALLOCATION LIMITS?**

Yes, this should always be the case and there should be clear use it or lose it criteria applied. Ideally a dynamic spectrum licensing model that supports broader application and use and is also a pay as you go model might be worth considering. Consideration should be given to allocation of spectrum in the 3.7 to 4.0 bands for other applications. (in Metro and Regional areas).

**3.1.11. SHOULD EXISTING SPECTRUM HOLDINGS IN BANDS OTHER THAN THE 3.4–4.0 GHZ BAND (I.E. OTHER MID-BAND LICENCES) BE CONSIDERED IN THE ACCC’S ASSESSMENT OF ALLOCATION LIMITS?**

Allocation to support real business needs should always be the driver. Spectrum allocation should come with a use it or lose it clause.

**3.1.12. HOW SHOULD THE VARIATIONS IN GEOGRAPHIC BOUNDARIES FOR BOTH EXISTING AND, POTENTIALLY, NEW LICENCES BE TAKEN INTO ACCOUNT IN DETERMINING THE OPERATION OF ANY ALLOCATION LIMIT?**

Again allocation should support and be driven by real business needs. Provision for a broader application support is called for. A Dynamic Spectrum Licensing model with flexible areas of allocation should be considered.

**3.1.13. HOW SHOULD THE ACCC TAKE TELSTRA AND TPG’S PROPOSED NETWORK SHARING ARRANGEMENT INTO ACCOUNT WHEN ASSESSING THE NEED FOR AND NATURE OF ALLOCATION LIMITS? ARE THERE OTHER THIRD PARTY AUTHORISATIONS IN PLACE FOR LICENSES IN THE 3.4–4.0 GHZ BAND OR OTHER MID-BANDS?**

Allocation should be supported by sound business needs. TPG and Telstra should not be restricted or punished from sharing spectrum if it makes good commercial sense for them and also allows them to extend better services. That said there is NO spectrum in the 2.3GHz to 2.7GHz bands available for WISPs to provide longer range NLOS Fixed Wireless services.

3.1.14. DO YOU THINK ALLOCATION LIMITS ARE NECESSARY FOR THE 3.4 GHZ AND 3.7 GHZ BAND SPECTRUM ALLOCATION? RELEVANTLY, WOULD ALLOCATION LIMITS PROMOTE COMPETITION AND ENCOURAGE INVESTMENT IN INFRASTRUCTURE, INCLUDING IN REGIONAL AUSTRALIA?

Yes, to ensure equitable use, but spectrum licensing in general is restrictive. A model that supports broader usage and cost-effective access to spectrum is a key ideal of the MPS and should be supported. This will drive real investment and innovation.

3.1.15. IF SO, DO YOU THINK A CROSS-BAND LIMIT OR AN IN-BAND LIMIT WOULD BE MORE APPROPRIATE? WHAT DO YOU THINK THE QUANTUM OF THE ALLOCATION LIMIT SHOULD BE? DO YOU THINK DIFFERENT ALLOCATION LIMITS SHOULD APPLY TO METROPOLITAN AND REGIONAL AREAS? HOW WOULD THE APPLICATION OF THESE ALLOCATION LIMITS AFFECT THE RELEVANT DOWNSTREAM MARKETS?

No further comment.

3.1.16. ARE THERE OTHER FACTORS THAT YOU CONSIDER THE ACCC SHOULD CONSIDER IN ASSESSING THE POSSIBLE ALLOCATION LIMITS TO APPLY?

No further comment