Cambium Networks

Allocation of 24 - 30 GHz Spectrum
Response to Technical Discussion
Nov 2025

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1 EXECUTIVE SUMMARY

The Cambium Networks team covering Australian, New Zealand and the Pacific Islands, appreciates the opportunity to submit a response to the Allocation of 24 - 30 GHz Spectrum.

Cambium Networks, is a leading global vendor of Fixed Wireless products, that supplies Point to Multipoint and Point to Point products that support the - 3.3 GHz to 4.2 GHz, 4.9 GHz to 5.9GHz and , 24.25 – 29.5 GHz and 60GHz for Broadband Wireless Access (BWA), 6-38 GHz for PTP Fixed Microwave band, narrowband IoT SCADA solutions and Cloud Managed Wi-Fi, Ethernet switches, SD-WAN/Firewall Edge Services and GPON/XGSPoN.

We welcome the establishment of licence arrangements for wireless broadband (FWA), across all parts the 24.25 - 29.5GHz band. We do note that there is a limited reference to FWA as part of the Mobile (IMS) allocation.

We hope more focus can be given this this primary use case for this band and spectrum allocation done under apparatus/ area wide licenses as is done in Australia by ACMA. Spectrum licensing is not ideal for Fixed Wireless/Private 5G applications

Our response to this Technical Consultation document is based on our knowledge and experience gained over the past 14 years working with network operators and enterprise customers building networks, delivering Fixed Point to Multipoint and PTP BWA services. We have seen the significant and positive impact that those services have had. We have also actively promoted the importance, availability and use of licensed and well as class licensed spectrum; and the use of Fixed Wireless network architectures to deliver broadband services to underserved areas as well as providing reliable connectively for mission critical industrial applications. Our response is hence based on our domain knowledge of the industry in Australia, New Zealand and on a global basis, and specifically Fixed Wireless technology and how it can be effectively used to connect the unconnected – people, places and things.

2 INTRODUCTION

2.1 INTRODUCTION TO CAMBIUM NETWORKS

At Cambium Networks, we support 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 2011 following divesture from Motorola Solutions.

2.2 WHAT IS FIXED WIRELESS?

Key to understanding the value of Fixed Wireless is understanding how it is different from and should not be confused with Mobile Broadband (MBB).

Mobile Broadband is synonymous with the networks that support mobile UE and are designed and built with that in mind.

Whilst similar in many respects, our Fixed Wireless broadband solutions are optimised to provide the best results for delivery of fixed data services using harmonized RF bands. The typical application for Fixed Wireless is to provide a fixed data service using RF, when the use of fiber or copper is not possible, suitable, available or affordable.

3 RESPONSE TO QUESTIONS.

1. Do you agree with RSM's proposed new spectrum uses outlined in Section 1.1? If not, provide details on the modifications you wish to propose with appropriate reasoning.

   Cambium Response>> Cambium Networks agrees. We see value in the band for use for the Fixed Wireless use case and hope that spectrum can be allocated in a suitable manner to support this.

2. Do you agree with RSM's assessment of the impact on existing users within 23.6 – 24 GHz, 24 – 24.25 GHz and 24.25 – 27.5 GHz, including the proposed technical and operational considerations, as well as technical conditions for the protection of EESS (passive) and potential RAS use in 23.6 – 24 GHz from future Mobile Service emissions in the adjacent 24.25 – 27.5 GHz band? If not, please provide further specific technical details and rationale, including technical studies.

   Cambium Response>> Agree. The Cambium Networks cnWave 5G solution operates from 24.25 to 29.5 only. Suitable co-ordination would only need to be considered for the 24.25-27.5 GHz band.

3. Are you aware of other locations apart from those listed in Table 3 which would be likely be used for RAS within New Zealand? If so, please provide details of these locations including the technical and operational parameters of the RAS receiver along with supporting material showing firm plans to establish a site at these locations.

   Cambium Response>>No Response

4. Are there any further application/system details you wish to provide which qualifies as an existing user?

   Cambium Response>> No Response

5. Do you agree with RSM's understanding of the spectrum requirements and key usage scenarios for enabling different services and applications (e.g., Mobile Service, EESS and SRS) in 24.25 – 27.5 GHz?

   Cambium Response>> Yes, Cambium Networks agrees with your understanding of the spectrum requirements. However, the use case of Fixed Wireless Access (FWA) is not covered. For FWA, a much higher spectrum efficiency can be achieved at the UE by using higher gain directional antenna. For reference, Cambium 5G Fixed UE has a dish antenna yielding a 36 dBi gain. With such higher gain, spectrum efficiency above 8 bps/Hz (800 Mbps in 100 MHz) can readily be

achieved using two data streams over horizontal & vertical polarisations. Cambium cnWave 5G, support 8x8 MU-MIMO with SISO to the CPE, so can achieve up to 400bps in a 112MHz channel.

6. What are your spectrum estimates for the use of Mobile Services, EESS and SRS in 24.25 – 27.5 GHz which you wish to implement or use? Present a technical analysis with appropriate justification.

   Cambium Response>> Cambium Networks cnWave 5G can operate from 24.25 to 29.5GHz band with 50MHz, 56MHz, 100MHz or 112MHz channel allocations. Typically, a site would require 2 x 100MHz channels and with TDD Sync we enable ABAB channel use. Typically range can be up to 10km, with 3km - 5km suggested operational range.

7. Can you provide a link budget of a system which you plan to operate in 24.25 – 27.5 GHz, which will assist RSM to better plan, allocate and assign this frequency range?

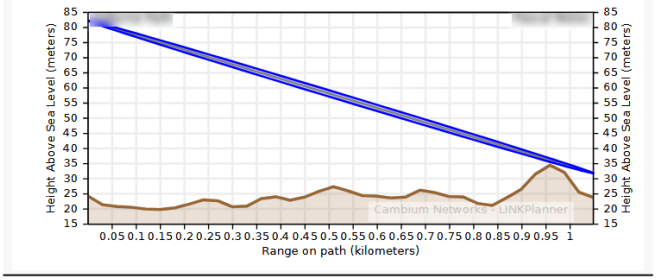
   Cambium Response>> Below is taken from Cambium RF planning tool, LINKPlanner. This is based on a 8x8 MIMO system at the Base Station and a 2x2 MIMO at the UE.

Osborne Park : 1

Network Device Summary	
BTS Name	Osborne Park : 1
Site Name	Osborne Park
Equipment Type	B1000 (running Release 4.0.0)
Antenna Type	Cambium Networks 90° B1000 Integrated Sector
Modeled Beamwidth	90°
Antenna Azimuth	0.00° from True North 1.51° from Magnetic North
Antenna Tilt	0.0°
Connected Subscribers	19
Max Range	4 kilometers
RF Frequency Band	26 GHz (24250 to 27500 MHz)
RF Channel Bandwidth	100 MHz
Symmetry	5:2
0.01% Rain rate	35.74 mm/hr
Rain Attenuation	4.81 dB/km
Total Predicted DL Throughput (Long Term SISO)	276.25 Mbps
Total Predicted UL Throughput (Long Term SISO)	102.04 Mbps
Total Predicted Throughput (Long Term SISO)	378.29 Mbps
Total Predicted DL Throughput (Instantaneous Dry Mu-MIMO)	1403.80 Mbps
Total Predicted UL Throughput (Instantaneous Dry Mu-MIMO)	529.40 Mbps
Total Predicted Throughput (Instantaneous Dry Mu-MIMO)	1933.20 Mbps
Spatial Multiplexing Gain DL	5.08
Spatial Multiplexing Gain UL	5.19
Spatial Multiplexing Gain Total	5.11

Summary	
BTS Name	Osborne Park : 1
Site Name	Osborne Park
CPE Name	Pascal Weiss
Link Type	Line-of-Sight
BTS Equipment Type	B1000 (running Release 4.0.0)
CPE Equipment Type	C100 (running Release 4.0.0)
Fresnel Zone Clearance	1.1 meters
Link Distance	1.048 kilometers
Free Space Path Loss	121.11 dB
Excess Path Loss	0.00 dB
RF Frequency Band	26 GHz (24250 to 27500 MHz)
RF Channel Bandwidth	100 MHz
Symmetry	5:2

Path Profile



8. Do you plan on operating mobile systems that are not standardised by 3GPP? If so, what type of equipment do you plan to operate and what are its technical characteristics? Where possible, please provide the relevant supporting technical documentation.

   Cambium Response>> Cambium Networks Fixed Wireless cnWave5G is not 3GPP compliant. The air interface is a proprietary variant of the 5G NR air interface complying with:

   - ISED Canada: RSS-191, SRSP 342.25 & SRSP 325.25
   - FCC: CFR47 Part 101 & CFR47 Part 30
   - EU: EN 302 326-2, v2.1.0

9. Does the mobile BS and UE you wish to operate within 24.25 – 27.5 GHz have unwanted emissions falling within 23.6 – 24 GHz of -39 dBW/200 MHz for BSs and -35 dBW/200 MHz for UEs? If so, could you provide details of the unwanted emission mask as a function of frequency? If not, could you provide the unwanted emissions limits of the equipment you wish to operate with the necessary technical justification?

   Cambium Response>> No.

10. Does the mobile BS you wish to operate meet the -60 dBW/MHz Category B spurious emissions limit from Recommendation ITU-R SM.329? If not, what do you propose for the necessary protect EESS (passive) receivers in 50.2 – 50.4 GHz and 52.6 – 54.25 GHz from the second harmonic of mobile BS emissions within 24.25 – 27.5 GHz?

Cambium Response>> Yes, Cambium Networks 5G Fixed BS does comply with the -60 dBW/MHz Category B spurious emissions limit from Recommendation ITU-R SM.329.

11. Do you agree with our 5% quantification for the use of the terms “very limited” number of BSs operating in 24.25 – 27.5 GHz that are expected to communicate with a positive elevation angle towards indoor mobile UEs? If not, what technical modifications would you suggest to this quantification?

    Cambium Response>> Yes, Cambium Networks does agree with your estimate, based on the observation of deployed customer networks worldwide.

12. For mobile system deployments envisaged in 24.25 – 27.5 GHz, what are the typical range of values for electrical and mechanical tilts which you intend to use? Do these parameters relate to the deployment environment (i.e., urban, sub-urban, etc)? If so, provide details of the relationship.

    Cambium Response>> Mechanical tilt from -10 deg to 5 deg.

13. How would you mathematically characterise the term “normally” pointing the BS below the horizon, as quoted in “resolves 2.1” of Resolution 242 (WRC-19)?

    Cambium Response>> No response

14. What would be your mobile BS’s typical elevation beam steering range and would the composition of the BS antenna array cause grating lobes to occur? If so, would you be able to quantify the direction and magnitude of these grating lobes?

    Cambium Response>> For the FWA deployment Cambium Networks supports, the distance from the BS to the UE is usually a lot longer than the relative height difference between the BS and the UE. As a result, most UE appear to be at the same elevation and bean steering in elevation is not necessary.

15. What type of TDD synchronisation options would you prefer and why? Do you prefer to have a default frame structure? What do you consider the underlaying technical conditions to manage any potential interference should be?

    Cambium Response>> Cambium Networks solutions have been making use of network wide 1 pulse-per-second synchronisation. In most application, this is derived from the second tick from a GNSS receiver at the BS.
    The frame duration is chosen so that an integer number of frames fit in 1sec period. For our Fixed 5G solution, the only supported frame duration a 1 ms or 1000 frames per second.

The frame structure is divided in 8 slots, each 125us and the following 3 frame structures are supported:

- 4 downlink slot, 1 downlink-to-uplink transition slot, 3 uplink slots
- 5 downlink slot, 1 downlink-to-uplink transition slot, 2 uplink slots
- 6 downlink slot, 1 downlink-to-uplink transition slot, 1 uplink slots

16. Do you agree with RSM's assessment on the need to design exclusion areas around the proposed EESS and SRS (space-to-Earth) sites in 25.5 – 27.0 GHz to protect them from aggregate Mobile Service emissions in 24.25 – 27.5 GHz? If not, what other technical alternative(s) would you suggest?

    Cambium Response>> Agree

17. Do you agree with RSM's assessment of the licensing framework for EESS (space-to-Earth) and SRS (space-to-Earth) anticipated to operate in 25.5 – 27 GHz? If yes, provide your reasoning. If no, which other alternative would you suggest licensing these services and why?

    Cambium Response>> No response

18. Do you agree with RSM's assessment of the licensing framework for RAS operating in 23.6 – 24 GHz? If yes, provide your reasoning. If no, which other alternative would you suggest to licence these services and why?

    Cambium Response>>No response

19. Do you agree with RSM's proposed new spectrum uses within 27.5 – 28.35 GHz, noting the growing demand for FSS (Earth-to-space) GSO and NGSO gateways and user terminals?

    Cambium Response>> Noted. Possible FWA is also valued.

20. Do you agree with RSM's assessment of the impact on existing users, including the sharing and compatibility scenarios, considerations and overall conclusions in the form of conditions to be met for the protection of existing users such as individually licensed FSS GSO and NGSO Earth stations, as well as FSS satellite receivers operating within 27.5 – 28.35 GHz? If not, please provide further specific technical details and rationale.

    Cambium Response>>No response

21. Is there any further application/system details you wish to provide which qualifies as an existing user? If so, please provide the details, including any relevant technical information.

    Cambium Response>>No response

22. Do you agree with RSM's understanding of the spectrum requirements for enabling different services and applications, e.g., FSS (Earth-to-space) and Mobile Service in 27.5 – 28.35 GHz?

    Cambium Response>> No response

23. What are your spectrum estimates for FSS (Earth-to-space) and Mobile Services (including their applications) which you wish to implement or use in the 27.5 – 28.35 GHz range?

    Cambium Response>> No response

24. Can you provide a link budget of systems which you plan to operate in 27.5 – 28.35 GHz, which will assist RSM to better plan, allocate and assign this frequency range?

    Cambium Response>> No response

25. Can you provide further insights into the typical metrics and calculation methodologies often used for GSO to GSO, GSO to NGSO and NGSO to NGSO FSS coordination? In doing so, given an application, how can we ultimately determine the amount of spectrum an FSS operator can ultimately use relative to another, while respecting the provisions contained in Article 9 of the ITU RR? RSM encourages you to share as much detail as possible.

    Cambium Response>> No response

26. Do you agree with the geography-based by area type option of sharing the 27.5 – 28.35 GHz frequency range between FSS (Earth-to-space) and Mobile Services, as detailed in Option 1? If not, please propose alternatives with the required details for RSM's consideration.

    Cambium Response>> Yes, this is a good idea.

27. Do you agree to divide Option 1 by Part A and Part B by using the Statistics New Zealand defined area accessibility criteria? If not, please suggest an alternative criterion which RSM could use?

    Cambium Response>> No response

28. In accordance with Part A of Option 1, do you agree that L-ESIMs should not be permitted inside major, large, medium, small urban areas and high urban accessibility areas? If not, please provide an alternative with a detailed explanation.

    Cambium Response>>No response

29. To facilitate the use of the Mobile Service in accordance with Option 1, do you have any suggestions on how RSM could implement coordination of mobile BSs with FSS (Earth-to-space) GSO and NGSO gateways and user terminals? In particular, which coordination trigger and methodology should RSM use (including any relevant reasons)?

    Cambium Response>>No response

30. In accordance with Part B of Option 1, do you agree that Mobile Service (and its applications) should not be allowed to operate inside medium and low urban accessibility areas, as well as remote and very remote areas? If not, please provide an alternative with a detailed explanation.

    Cambium Response>>No response

31. Would you like to propose any modifications for Option 1? If so, please provide modifications with relevant associated details.

    Cambium Response>>No response

32. Do you agree with the geography-based by priority of service type option of sharing the 27.5 – 28.35 GHz frequency range between FSS (Earth-to-space) and Mobile Services, as detailed in Option 2? If not, please propose alternatives with the required details for RSM's consideration.

    Cambium Response>>Yes

33. Which areas would you like FSS to have priority over Mobile Services, and vice versa, and why?

    Cambium Response>> No response

34. How would you recommend RSM to calculate the coordination zones described in Part A and Part B of Option 2?

    Cambium Response>>No response

35. Are there any other suggestions for licensing conditions which you wish to see included as part of Option 2? RSM encourages details of specific conditions for different types of FSS user terminals, e.g., fixed terminals vs. A-ESIMs and M-ESIMs.

    Cambium Response>>No response

36. Would you like to see any additional technical conditions which facilitate sharing for Parts A and B of Option 2? Describe in detail, the changes you would want to make to this proposal.

    Cambium Response>>No response

37. Do you agree with our approach of ESIM use in 27.5 – 28.35 GHz?

    Cambium Response>>No response

38. Do you wish to offer, implement or use pier-to-pier or gate-to-gate M-ESIM and A-ESIM applications in 27.5 – 28.35 GHz?

Cambium Response>>No response

39. Is there any other change which you wish to see in our approach for using A-ESIM and M-ESIM? If so, provide the relevant details.

    Cambium Response>>No response

40. Do you agree with RSM's proposed new spectrum uses outlined in Section 3.1? If not, provide details on the modifications you wish to seek with appropriate reasoning.

    Cambium Response>>No response

41. What is the likelihood of interference from land ESIM terminals operating in 28.35 – 29.5 GHz to Mobile Service receivers (BSs and UEs) operating in 27.5 – 28.35 GHz under possible shared use of FSS (Earth-to-space) and Mobile Services in 27.5 – 28.35 GHz?

    Cambium Response>>No response

42. What technical conditions may be required to ensure that future L-ESIM use is not constrained in 28.35 – 29.5 GHz while protecting possible Mobile Service receivers in 27.5 – 28.35 GHz. Provide necessary technical justification to support your answer.

    Cambium Response>>No response

43. To not constrain future use of A-ESIMs and L-ESIMs, do you propose any changes to the technical conditions for operating A-ESIMs and L-ESIMs within 28.35 – 29.5 GHz? If so, what would these be and what assumptions as well as processes did you use to derive these changes?

    Cambium Response>>No response

44. Do you agree with RSM's proposed licensing arrangement to licence FSS (Earth-to-space) GSO or NGSO gateways operating in 28.35 – 29.5 GHz? If not, what changes would you recommend?

    Cambium Response>>No response

45. Which licensing option would you prefer for licensing FSS GSO and NGSO fixed user terminals and moving user terminals (ESIMs), respectively? RSM requests for appropriate justification to support your answer.

    Cambium Response>>No response

46. Do you agree with RSM's proposed approach to 29.5 – 30 GHz? If not, what modifications would you suggest to our proposal?

Cambium Response>> No response

47. Do you agree with RSM's proposed approach to 17.7 – 20.2 GHz? If not, what modifications would you suggest to our proposal?

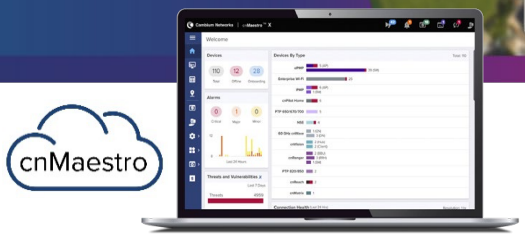
    Cambium Response>> No response

cnWave 5G Fixed Base Transceiver Station

Base Transceiver Station Quick Look

A simple, affordable yet powerful 5G fixed wireless solution for 24–29 GHz spectrum.

- Throughput of over 3 Gbps per sector
- Using Multi-User MIMO
- Based on 5G NR protocol using SDR architecture to enable continuous evolvement and enhancements



cnWave™ 5G Fixed Base Transceiver Station (BTS) Key Features

- Multi-User MIMO technology enhances sector capacity by combining a smart beamforming antenna array with multiple RF transmit and receive chains, effectively multiplying available capacity.
- One radio model capable of operation from 24.25 GHz to 29.50 GHz spectrum, covering the most common 5G bands globally.
- High-performance radio interface optimized for fixed wireless and frequency reuse across a network.
- 2 SFP+ ports allow 1 Gbps or 10 Gbps optical interfaces.

cnWave 5G Fixed Base Transceiver Station

Product Model Numbers

Integrated 90° Sector B1000 Fully Featured	C280500A101A

Spectrum

Frequency Range	24.25 ~ 29.50 GHz
Channel Width	50, 56, 100, 112 MHz channels

Interface

MAC (Media Access Control) Layer	5G NR air interface
Subscribers per Sector	Up to 120
Physical Layer	5G NR air interface-based, OFDM 120 KHz subcarrier spacing, DL and UL 8x8 MU-MIMO
Ethernet Interface	10/100/1000BaseT, SFP support for 1 Gbps or 10 Gbps optical
User Traffic	Ethernet Layer 2
Network Management	IPv4/IPv6 (dual stack), HTTP/HTTPS, TFTP, SNMPv2c and v3 Cambium Networks cnMaestro™
VLAN	802.1ad (DVLAN Q-inQ), 802.1Q with 802.1p priority Dynamic port VID learning

Security

Encryption	FIPS-197 128-bit AES, 256-bit AES

Performance

Channel Size	DL MCS	DL Sensitivity (dB)	UL MCS	UL Sensitivity (dB)
112 MHz	MCS 23	-91.5	MCS 23	-78.5
	MCS 6	-111.1	MCS 6	-98.2
56 MHz	MCS 24	-93.3	MCS 22	-82.7
	MCS 6	-114.1	MCS 6	-101.2

Maximum EIRP	+44 dBm
Hybrid ARQ	Yes, DL and UL
Maximum Deployment Range	Up to 10 km (6.4 mi)
Latency	10 ms, typical
TDD Synchronization	Embedded GPS, sync-over-power or IEEE1588v2
TDD Symmetry	5:2, 6:1, 4:3
Quality of Service	4 levels

cnWave 5G Fixed Base Transceiver Station

Antenna

Type	Integrated
Integrated Antenna Peak Gain	23 dBi
Beam width - Azimuth	90° integrated (selectable polarity H or V, 6 dB roll-off)
Beam width - Elevation	15°

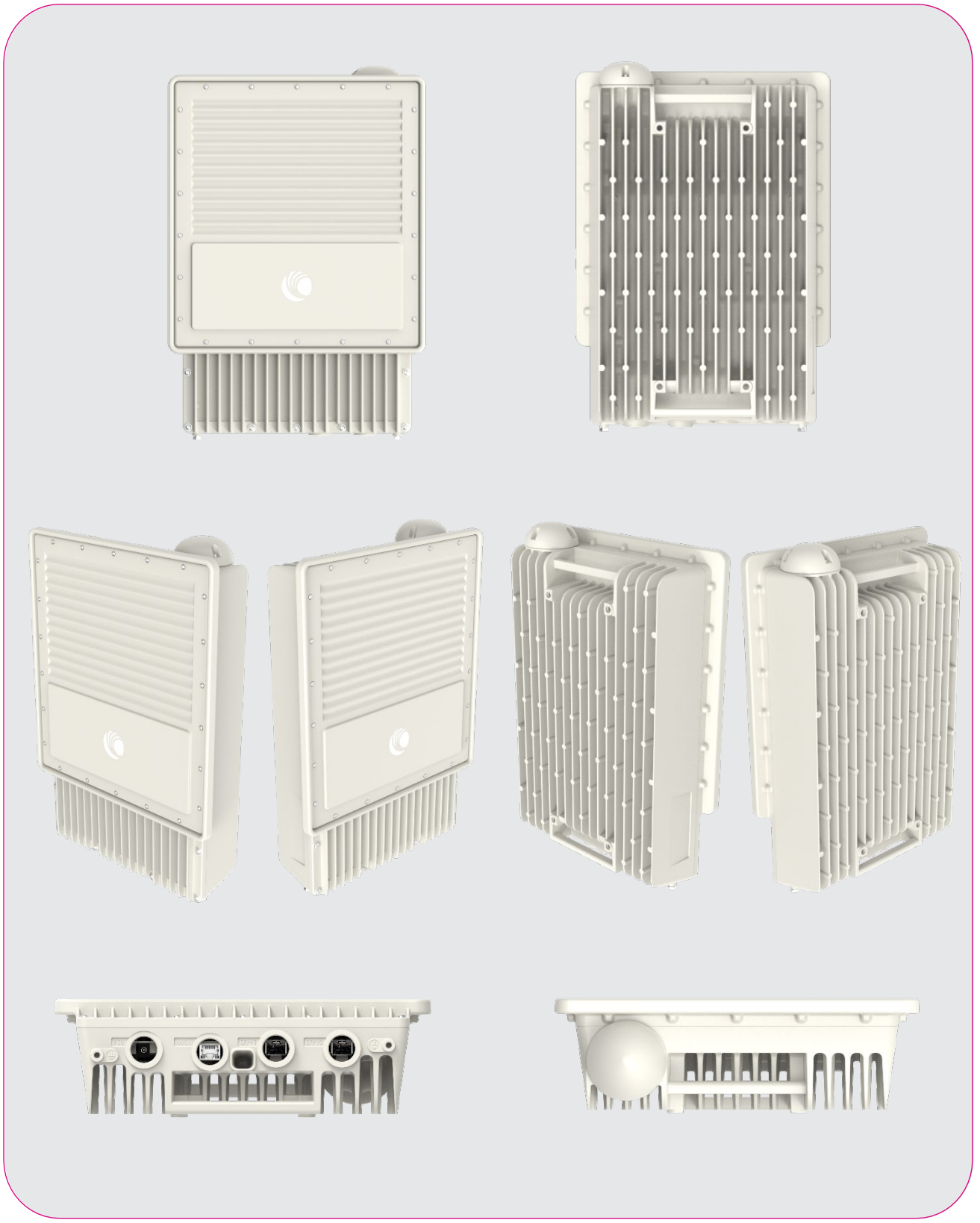
Physical

Surge Suppression (with LPU)	**MAIN ports:** EN61000-4-5: 10/700us, 4 kV voltage waveform, recommended external surge suppressor: Model # C000065L007B **DC IN port:** EN61000-4-5: 10/700us, 4 kV voltage waveform, recommended external surge suppressor: Model # C000000L114A
Mean Time Between Failure	>40 years
Environmental	IP67, IP66
Temperature/Humidity	-40°C to 60°C (-40°F to 140°F), 100% non-condensing
Weight	Without Mounting Brackets: 11.3 kg (25 lb); with Mounting Brackets: 13.8 kg (30.4 lb)
Wind Survival	200 kph (124 mph)
Wind Loading – Front Facing	@ 144 kph (90 mph): <613 N @ 177 kph (110 mph): <927 N @ 200 km/h (124 mph): <1183 N
Dimensions	49 x 34 x 11 cm (19.5 x 13.4 x 4.3 in)
Power Consumption	180W maximum
Input Voltage	40~60 V DC
Mounting	Pole mount with included brackets 32 mm (1.25 in) to 100 mm (4 in) pole diameter

Certifications

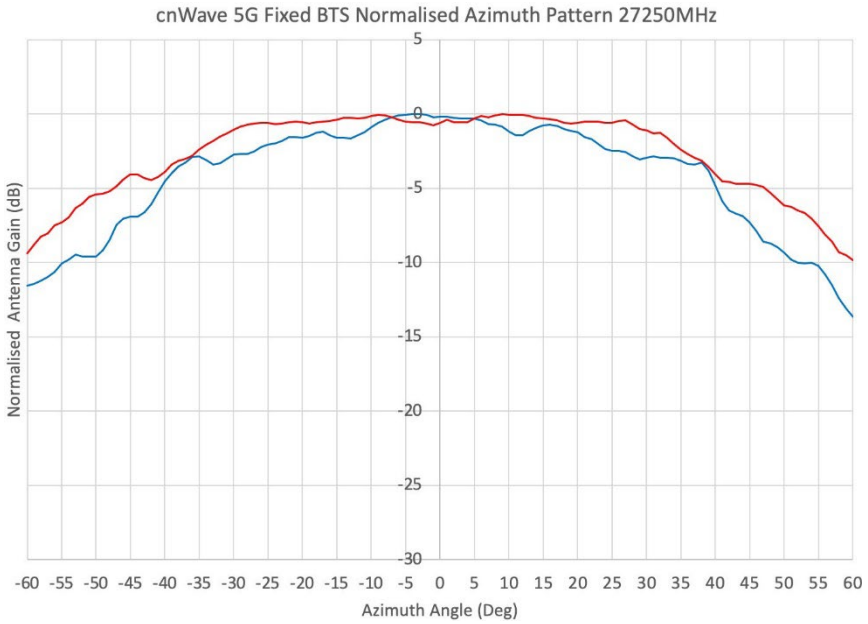
ISED Canada	RSS-191, SRSP 342.25 & SRSP 325.25
FCC	CFR47 Part 101 & CFR47 Part 30
CE	EN 302 326-2, v2.1.0

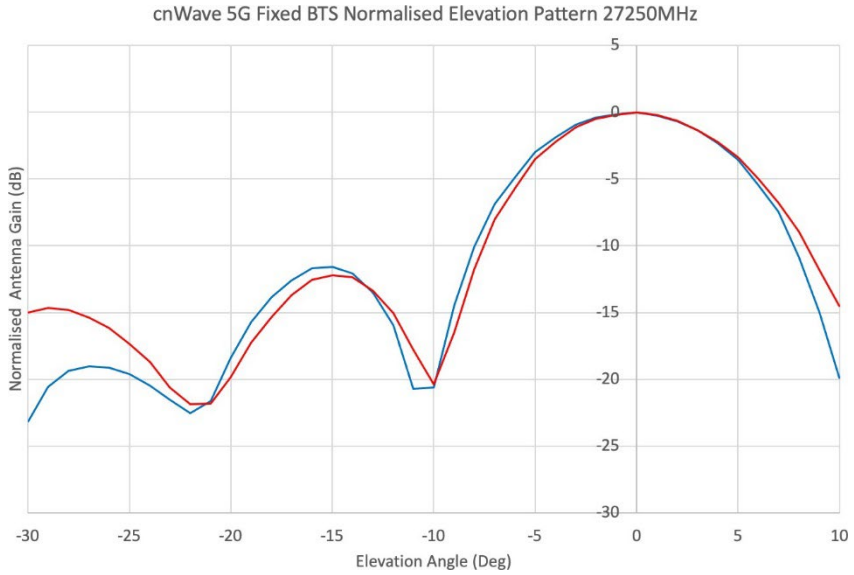
cnWave 5G Fixed Base Transceiver Station



cnWave 5G Fixed Base Transceiver Station

Base Transceiver Antenna Patterns (Sector Mode)





ABOUT CAMBIUM NETWORKS

Cambium Networks enables service providers, enterprises, industrial organizations, and governments to deliver exceptional digital experiences and device connectivity with compelling economics. Our ONE Network platform simplifies management of Cambium Networks' wired and wireless broadband and network edge technologies. Our customers can focus more resources on managing their business rather than the network. We make connectivity that just works.

cambiumnetworks.com

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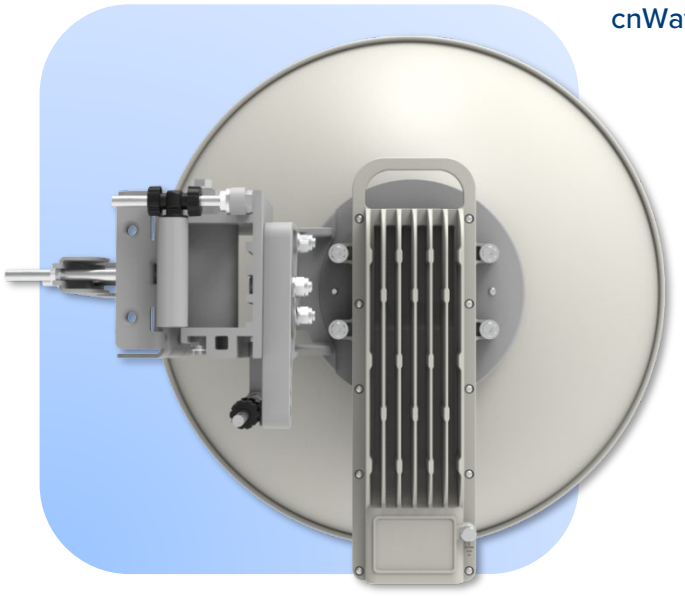
cnWave 5G Fixed Customer Premises Equipment

Customer Premises Equipment Quick

A simple, affordable yet powerful 5G fixed wireless solution for 24–29 GHz spectrum.

- Throughput of over 400 Mbps aggregate
- 5G NR protocol using SDR architecture to enable continuous evolvement and enhancements



cnWave™ 5G Fixed Customer Premises Equipment (CPE) Key Features

- Up to 400 Mbps of throughput at the Customer Premises Equipment (CPE)
- Gigabit Ethernet interface provides the maximum transfer rates to the device
- 802.3at PoE to allow standards-based powering of devices
- One radio model capable of operation from 24.25 GHz to 29.50 GHz spectrum, covering the most common 5G bands globally
- Optimized for throughput, high-gain integrated dish to maximize range

cnWave 5G Fixed Customer Premises Equipment

Product Model Numbers

C100 CPE Radio	C280500C001A
Antenna Assembly	C280500D001A

Spectrum

Frequency Range	24.25–29.50 GHz
Channel Width	50, 56, 100, 112 MHz channels

Interface

MAC (Media Access Control) Layer	5G NR air interface
Physical Layer	OFDM
Ethernet Interface	100/1000BaseT, full duplex, rate auto negotiated (802.3 compliant)
User Traffic	Ethernet Layer 2
Network Management	IPv4/IPv6 (dual stack), HTTP/HTTPS, TFTP, SNMPv2c and v3 Cambium Networks cnMaestro™
VLAN	802.1ad (DVLAN Q-inQ), 802.1Q with 802.1p priority Dynamic port VID learning

Security

Encryption	FIPS-197 128-bit AES, 256-bit AES (requires optional license for attached access point)

Performance

Channel Size	DL MCS	DL Sensitivity (dB)	UL MCS	UL Sensitivity (dB)
112 MHz	MCS 24	-98.5	MCS 23	-78.7
	MCS 6	-118.1	MCS 6	-98.2
56 MHz	MCS 22	-98.4	MCS 22	-82.7
	MCS 6	-119.2	MCS 6	-101.2

Maximum EIRP	+52 dBm
Hybrid ARQ	Yes, DL and UL
Maximum Deployment Range	Up to 10 km (6.4 mi)
Latency	10 ms, typical
Quality of Service	4 levels

cnWave 5G Fixed Customer Premises Equipment

Antenna

Antenna Connection	Integrated reflector dish
Integrated Antenna Peak Gain	36 dBi
Beam width - Azimuth	2°
Beam width - Elevation	2°

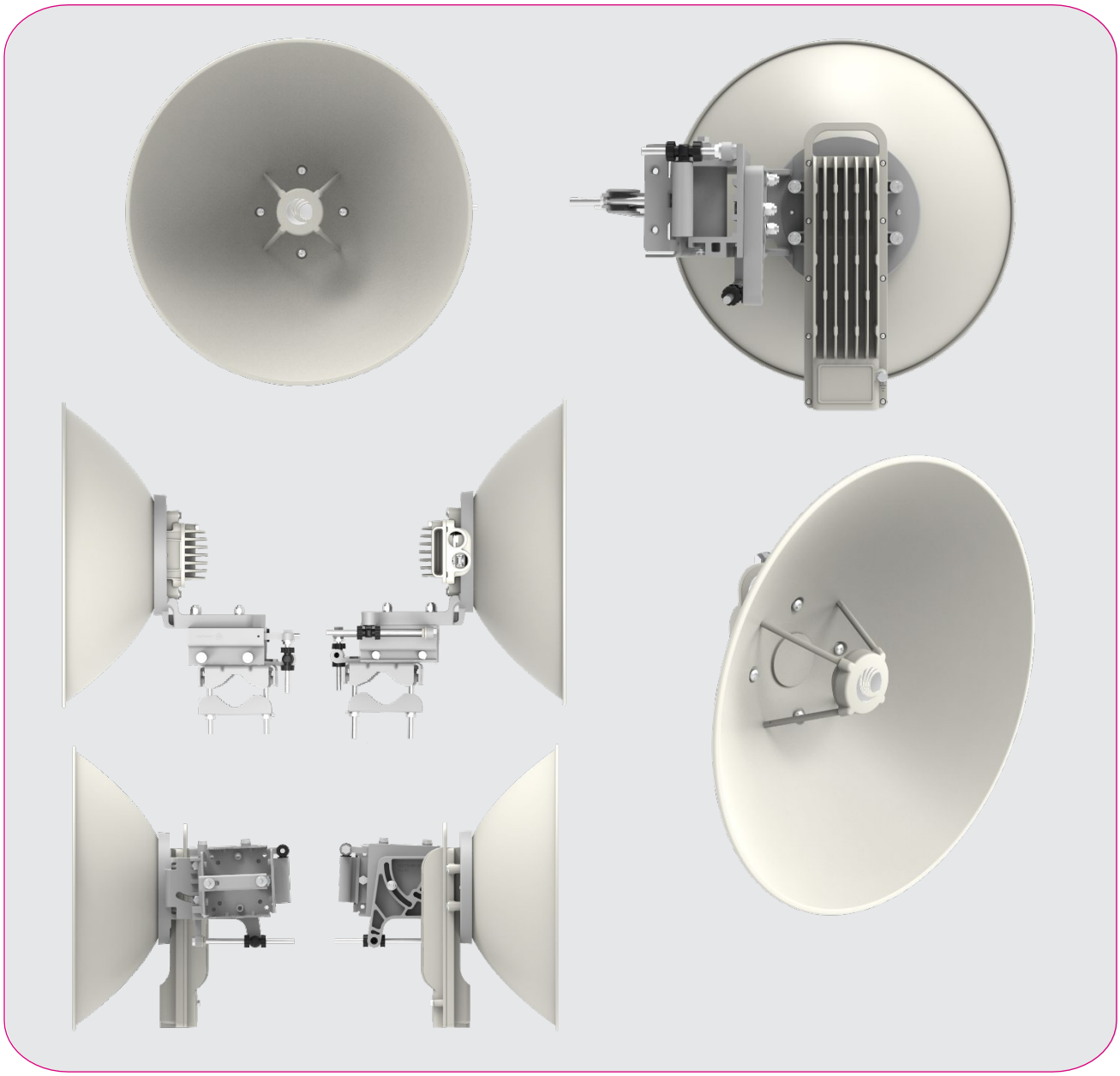
Physical

Mean Time Between Failure	>40 years
Environmental	IP67, IP66
Temperature/Humidity	-40°C to 60°C (-40°F to 140°F), 100% non-condensing
Weight	Dish + Radio: 3.8 kg (8.4 lb); with Precision Bracket: 6.5 kg (14.3 lb)
Wind Loading – Front Facing	@ 145 km/h (90 mph): <207 N @ 200 km/h (124 mph): <395 N
Dimensions	Radio only: 34 x 14 x 8 cm (13.9 x 5.5 x 3.1 in) Assembled unit: 46 cm (18.1 in) diameter, 24 cm (9.4 in) depth
Power Consumption	20 W maximum
Input Voltage	40~60 V DC

Certifications

ISED Canada	RSS-191, SRSP 342.25 & SRSP 325.25
FCC	CFR47 Part 101 & CFR47 Part 30
CE	EN 302 326-2, v2.1.0

cnWave 5G Fixed Customer Premises Equipment



ABOUT CAMBIUM NETWORKS

Cambium Networks enables service providers, enterprises, industrial organizations, and governments to deliver exceptional digital experiences and device connectivity with compelling economics. Our ONE Network platform simplifies management of Cambium Networks' wired and wireless broadband and network edge technologies. Our customers can focus more resources on managing their business rather than the network. We make connectivity that just works.

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