

The logo for Optus, consisting of the word "OPTUS" in a bold, teal, sans-serif font.

Submission in response to
ACMA Consultation Papers

**Arrangements for
jamming devices and
radiocommunications
device exemptions**

Public Version

July 2020

EXECUTIVE SUMMARY

1. Optus welcomes the opportunity to provide feedback to the Australian Communications and Media Authority (ACMA) consultation package on *Arrangements for jamming devices and radiocommunication devices exemptions*, comprising three distinct papers:
 - (a) Review of radiocommunications prohibitions and exemptions framework;
 - (b) Radiocommunications exemptions for law enforcement use of drone jamming devices; and
 - (c) Facilitating trials of radionavigation-satellite service (RNSS) repeater devices in road tunnel networks.
2. Optus supports the timely review of the prohibition and exemptions regime, particularly given their co-dependency and operation together under the same broader regulatory framework. We also recognise the need to balance safeguarding the operation of communication networks with other public interest objectives.
3. There is a continued role for both prohibition and exemption instruments to operate, and each exists as a unique actor within the regulatory landscape.
4. In general, Optus considers that if a device is designed to jam signals, then these should be prohibited and managed by exemption. There is a concern that the proliferation of these jamming devices will further exacerbate the challenges already created by both the expansion of class licensing arrangements as well as the use of exemption applications to these arrangements. Optus is also concerned over the piecemeal approach to expanding the use of exemption applications currently being taken by the ACMA, particularly where it applies over a prolonged period or for undefined parameters.
5. Optus is concerned this approach risks setting a precedent that removes transparency on the devices being operated; **[CiC]** and expanded scope for which the exemption would apply. These issues should not be ignored and we are very concerned of the potential scope creep that these changes may enable. Our expectation is that the ACMA will continue to maintain oversight of the extent and how often these exempted devices are used.
6. As a general rule, the use of exemption applications should be limited in both its use and its relevance to a very narrow range of persons. These should also be accompanied by appropriate notifications protocols including technical details of any equipment (i.e. drone or mobile jamming devices) being used and its potential impact on the operation of existing networks.
7. More transparency should also be provided to ensure limited impact on other radiocommunication users and to ensure that the rights of other spectrum licensees will not be adversely affected.

Review of prohibitions and exemptions framework

8. In summary, Optus considers:
 - (a) Continued operation of the prohibition and exemption framework is warranted. The jamming prohibitions for mobile and GPS networks should continue to operate for the foreseeable future. These also play an important role in ensuring that all devices and equipment must be compliant to be used in Australia.

- (b) Exemption arrangements should continue to be assessed on a case-by-case basis. There should be no blanket exemption arrangements.
 - (i) All devices designed to disrupt and which are *known* to cause interference to networks should continue to be managed under an exemptions regime; and
 - (ii) Where the deployment of devices with unknown interference impacts on networks requires an exemption, this must be supported by the requisite technical evidence to support any claims about its interference impact on networks.
- (c) A notification requirement should be established as part of any exemption arrangement.

Proposed exemption arrangements for drone jamming devices for law enforcement agencies

9. In summary, Optus considers:

- (a) There should also be a notification requirement established as part of any exemption arrangement. The proposed exemption arrangements should include the requirement to provide ways to manage the risks to adjacent licensees, for example, **[CiC]**
- (b) Further clarity should be provided regarding the areas and scope of certain activities, such as types of special events, to which this broad exemption is expected to apply.
- (c) Any extension of the existing exemption arrangements for the AFP should be considered on a separate case-by-case basis. Expanding the use of counter-drone devices to more agencies may result in uncoordinated usage and increase the risk of disproportionate interference to the operation of networks.

Facilitating RNSS Repeater trials in road tunnels

10. In summary, Optus considers:

- (a) There is insufficient evidence to support the removal of RNSS repeaters from the Prohibition instrument. The proposed amendment represents a disconnect with the expressed intent of facilitating RNSS repeater trials in road tunnels, and in doing so also potentially opens RNSS repeaters to be deployed in uncontrolled environments and for other uses.
- (b) Optus also does not support the introduction of any 'light' licensing arrangements, such as the Ofcom approach for Indoor GPS Repeaters. Current 'class licensing' type arrangements are not appropriate for this use.
- (c) Importantly, the risk of network synchronisation disruption is a wide-area issue and its impact can extend beyond just a single network or site. The interference risk and impact on one site has the potential to cascade to both a combination of neighbouring sites and even adjacent networks operated by other parties.
- (d) As an interim measure, an exemption application may be considered to facilitate a trial to test the interference impact on networks. This should be subject to a limited duration and only be applied to specified locations.

REVIEW OF PROHIBITIONS AND EXEMPTIONS FRAMEWORK

11. Optus supports the timely review of the prohibition and exemptions regime, particularly given their co-dependency and operation together under the same broader regulatory framework. We also recognise the need to balance safeguarding the operation of communication networks with other public interest objectives, therefore support the continued role for both prohibition and exemption instruments to operate.

Q1 - What changes in technology, and developments in the communications and broader environment, are likely to put pressure on the prohibition and exemption framework?

12. We recognise there have been changes in technology and developments in the communications environment since the current prohibition and exemption framework were established in 1992.
13. In particular, the mobile sector has seen the evolution of its networks from 2G technology, through to 3G and 4G, as well as the increasing momentum for the deployment of 5G networks. These networks have also facilitated a change in consumer behaviour through increased demand for data, take-up and proliferation of devices. Connectivity has therefore become a key social and economic enabler in driving productivity and innovation outcomes.
14. This dynamic environment, and the growing proliferation of devices and applications, will no doubt add further pressure on the prohibition and exemption framework with the increasing deployment of 5G networks. Viewed through a separate lens, this increased reliance on connectivity also emphasises the importance of communication networks and the fundamental role that the current prohibition declarations have played in ensuring no undue interference with network operations.
15. Optus therefore submits that there is a continued role for both prohibition and exemption instruments to operate. We envisage that these will continue to co-exist within the regulatory landscape over the foreseeable future.

Continued operation of the prohibition and exemption framework is warranted

16. Optus submits there is a continued role for the making of prohibition and exemption instruments, and that each exists as a unique actor within the regulatory landscape.
17. In particular, the policy of prohibition ensures that the operation of devices does not cause any undue interference with communication networks, while the exemption regime allows for some exceptions to be granted in very limited specific circumstances.
18. In summary, Optus considers
 - (a) The jamming prohibitions for mobile and GPS networks should continue to operate for the foreseeable future. They also play an important role in ensuring that all devices and equipment must be compliant to be used in Australia.
 - (b) Exemption arrangements should continue to be assessed on a case-by-case basis. There should be no blanket exemption arrangements.
 - (c) A notification requirement should be established as part of any exemption arrangement.

The prohibition regime remains crucial for the operation of communication networks.

19. The prohibition regime involves the ACMA exercising its power under the Act to prohibit specified devices. In practice, the prohibition regime protects consumers, businesses, and network and service providers from the potentially adverse effects of devices designed or likely to cause interference to radiocommunications.
20. The ACMA also acknowledges that: *“Prohibition declarations have been used to manage risks to services that are regarded as economically and socially critical, or are relied upon for safety, security or strategic outcomes.”*¹ In addition, these declarations can only be applied at a device-specific level, i.e. it applies to possession, operation and supply of the restricted devices in all circumstances, regardless of context.
21. There are currently two such prohibition declarations in force:
 - (a) the *Radiocommunications (Prohibition of PMTS Jamming Devices) Declaration 2011* (PMTS Jamming Device Prohibition); and
 - (b) the *Radiocommunications (Prohibited Device) (RNSS Jamming Devices) Declaration 2014* (RNSS Jamming Device Prohibition).
22. Optus supports the ongoing application of these prohibitions in ensuring no significant adverse impact on networks; and are fundamental in ensuring that all devices and equipment must be compliant to be used in Australia.
23. Mobile operators have continued to make significant investments in spectrum resources to deploy mobile networks. Spectrum licensing and technical frameworks already instil a framework of access rights for licence holders, which in the case of spectrum licensed holdings also comes at significant cost.
24. This will also become more important as networks are upgraded to newer technologies, such as 5G. The ongoing role of GPS for network synchronisation is also not insignificant and allowing for any exemptions that impact on these frequencies may result in unintended consequences.

Scope of prohibition regime

25. Optus supports the continued application of the prohibition declarations to be based on service-level terms. That is,
 - (a) The PMTS Jamming Device Prohibition relies on the broad, technology-neutral definition of a public mobile telecommunications service in section 32 of the Telecommunications Act 1997.
 - (b) The RNSS Jamming Device Prohibition includes GPS, which is used for a wide range of military and civilian applications. GPS is also used for timing purposes for communications, banking, commerce, manufacturing, and the internet.
26. Over time, ‘jamming’ devices have also been developed to operate over multiple frequencies and serve different purposes. However, this does not eliminate the risk of interference with current essential communications networks and GPS applications.

¹ ACMA, 2020, Review of radiocommunications prohibitions and exemptions framework, Consultation Paper, May, p.10

27. In principle, where such devices can be tuned to operate over multiple frequencies, then reliance on the operation of these prohibition declarations becomes more important.

Q2 - In what ways is the prohibition regime not performing optimally?

Q3 - Are there devices currently not prohibited that should be?

Q4 - Are there devices currently prohibited that should not be?

28. The ACMA flags several examples of devices that have a 'jamming' function, but are expressly designed, or likely to have a beneficial purpose. These include: PMTS jamming on aircraft; RNSS repeaters; and pseudolites (pseudo-satellites).
29. For PMTS jamming on aircraft, ongoing use of these devices has been facilitated through a change to the PMTS Jamming Device Prohibition and the licensing system. Optus supports the ongoing reliance on these arrangements to enable this use.
30. In contrast, RNSS repeaters and pseudolites remain notionally subject to the RNSS Jamming Prohibition. Optus does not agree that amending the RNSS Jamming Device Prohibition to facilitate use of RNSS repeaters to provide regulatory certainty for use by emergency service providers is commensurate with the reliance on the licensing system to manage the risks on interference to GPS applications by other users. For example, the concern that deployment of these devices requires practical risk management needs to be adequately addressed.
31. These devices should not be removed from the Prohibition regime, however the approach for establishing exemptions may be guided based on its known impact on networks. Optus considers that these examples fall into two specific categories:
- (a) Devices designed to disrupt; and
 - (b) Devices which may result in unintended consequences.
32. We discuss this below.

Devices designed to disrupt should be managed under an exemptions regime.

33. Devices that have been designed to serve a specific 'jamming' function in specified circumstances and are *known* to cause interference to networks should continue to be managed under the exemptions regime.
34. For example, devices used for PMTS jamming on aircraft are used for the expressed intent of 'jamming' and will cause interference to networks. It is therefore appropriate that these types of devices continue to be prohibited and exemptions only allowed under very limited circumstances, such as time-limited period and/or specified location basis.
35. Other examples of types of devices which would warrant management under an exemptions regime include IMSI catchers. These devices largely operate by 'pretending' to be a base station and can, as a result, cause interference with nearby networks. This may also have implications for the operation of high-altitude platform services (HAPS).
36. It follows that use of these types of devices need to be properly managed and include appropriate interference mitigations. Ideally the deployment of any such device should also be adequately logged to allow for appropriate network monitoring for any potential impact on networks. As such, these need to be managed by exemption.

Devices which may result in unintended consequences

37. There are many cases where devices with a 'jamming' function may cause interference to networks. Where the operation of such devices may lead to a risk of unintended consequences, and have unknown mitigations, then these devices should be subjected to further investigation.
38. In the first instance, use of these devices where necessary should be managed under an exemption framework to ensure that the impact on networks is not detrimental. For example, an exemption application may be sought for a specified duration and/or specific location to allow for trials to be undertaken. Only after the completion of successful trials and accompanying results that show no detrimental interference impacts on networks, can the discussion for a wider scope or longer-term exemption properly commence. It is not appropriate that these devices be afforded a broad exemption without the requisite technical evidence to support any claims about its interference impact on networks.
39. The risk of unintended consequences can be heightened for several reasons:
 - (a) Exemption, or worse case the removal of certain devices from the prohibition declaration, may lead to unfettered use and the proliferation of these prohibited devices. The risk of device proliferation cannot be understated, as the aggregate impact of multiple devices can cause undue interference to existing networks.
 - (b) Coupled with extensive use in outdoor environments, this may result in unintended consequences for mobile networks. For example, the use of RNSS repeaters and its potential impact on GPS timing is of considerable concern to mobile operators.
 - (c) The potential impact of disruption to network synchronisation is also a wide-area issue and not standalone or limited to isolated cases. The interference risk and impact on one site has the potential to cascade to both a combination of neighbouring sites and even adjacent networks operated by other parties.
 - (d) Allowing a broad exemption from the deployment of devices with unknown interference impacts on networks is also ill-advised. For example, the use of pseudolites is still in its infancy and it is unclear to what extent the demand and use of these devices will proliferate over time.
 - (e) Once removed from the regulatory framework, there will be reduced recourse available to operators to verify the cause of any interference events and seek recourse for the use of any of these devices causing detrimental impact to their networks.
40. Optus notes that further detail is required to ensure that any exemption or removal of prohibited devices from oversight is justified.

Exemption determinations should be reviewed on a case-by-case basis

41. The exemption regime comprises two types of exemption allowed under the Act, including:
 - (a) statutory exemptions, where the Act does not apply to a range of people, such as members of the Defence Force, in certain circumstances; and

- (b) exemptions made by the ACMA, which involve the ACMA exercising its statutory authority to determine, by legislative instrument, that Parts of the Act do not apply to a narrow class of people in specified circumstances.
42. In practice, the exemption regime facilitates a range of safety, security, law enforcement and defence outcomes that can only be achieved using devices that would otherwise be prohibited. As such, different types of exemption arrangements exist to allow jamming devices to be used in very limited and specific circumstances. Ideally, they should remain quite specific and limited to a location, facility or time period.
43. Optus considers there is an ongoing role for the establishment of exemption arrangements, and the continued need for these to be reviewed on a case-by-case basis. This will also become more important with the increasing proliferation of devices in the communications market. It follows that more transparency is required to ensure that the rights of other spectrum licensees will not be adversely affected.
44. In addition, strict caution should be taken to ensure there is not a proliferation of exemption arrangements across jurisdictions for various agencies and purposes. Allowing such a proliferation will only result in a fragmented and uncoordinated approach that only serves to undermine the overall policy of prohibition of jamming devices.

Notification protocols should be required

Q5 - What additional measures could the ACMA take to provide transparency and predictability in relation to exemption determinations?

45. To further strengthen the objective that exemption arrangements do not cause undue interference to communication networks, the use of notification protocols should be required. This can be in the form of upfront notification of any proposed activities, such as time-limited window, duration, technical specification of any devices being operated, and indication of any potential interference impacts that may be experienced.
46. Of particular importance, is the need to understand the frequency bands that may be impacted by interference as a result. We also understand that in some cases, advance notification may not always be possible, therefore retrospective notification should be provided as soon as practicable after the event.
47. For example, the Radiocommunications (Prohibited Devices) (Use of Electronic Counter Measures for Bomb Disposal Activities) Exemption Determination 2010 (the ECM Exemption) has the practical effect of authorising importation and use of ECM devices² – which may be mobile phone or GPS jamming devices – to facilitate bomb disposal operations by police.
48. An important feature of the ECM Exemption is the explicit notification requirement set out at clauses 11 and 12 for the police agency to notify critical radiocommunication spectrum users and the ACMA about the operation or proposed operation in conjunction with a bomb disposal emergency.
49. Optus strongly advocates for the retention of this notification requirement to apply in all exemption determinations.

² ECM devices are a range of electrical or electronic devices designed to disrupt or deceive radar, sonar and other detection systems like infrared and laser. ECM includes the use of, but is not limited to, mobile phone jammers.

50. We consider that where agencies comply with the exemptions, then in theory this notification process should work. The ACMA should maintain an ongoing monitoring role to ensure compliance.

Scope of exemptions regime

51. Optus supports the continued application of exemption arrangements to be limited to specific circumstances and relevant persons, in controlled circumstances. Exemptions allow for the tracking of potential interference instances and recording of such events. We consider that this could be further supplemented by an ongoing reporting and notifications requirement, which would allow for the monitoring of potential device proliferation and interference events.
52. Expanding the scope of this requirement – by either granting allowance under the prohibition declaration or approving an open-ended exemption arrangement that does not require any notification requirement – could undermine the objective of the prohibitions regime and introduce unintended consequences.

Suggested changes to the proposed prohibitions and exemptions framework

Q6 - How could the ACMA consider facilitating use of meritorious, low risk, and outlier devices and applications in lieu of exemption determinations?

Q7 - Is the range of activities that may be exempted from Parts of the Act fit for purpose?

Q8 - Is the range of persons to whom the exemption regime may apply fit for purpose?

53. Optus acknowledges that further streamlining of the prohibitions and exemptions framework may be warranted to ensure greater clarity on the operation of the rules, and to promote regulatory certainty for all users.
54. In the current age of network resilience and accountability, the policy of prohibition is necessary and of utmost importance to this regulatory landscape. Mobile and GPS networks must be able to operate with the confidence that devices and equipment that interact with them are compliant and will not cause any adverse network impacts. This will increasingly become more important even as technology evolves and network operators held to account.
55. The role of exemptions is also important. Different types of exemption arrangements exist to allow jamming devices to be used in very limited and specific circumstances. Ideally, they should remain quite specific and limited to a location, facility or time period.
56. It follows that caution must be taken to ensure there is not a proliferation of exemption arrangements across jurisdictions for various agencies and purposes. Allowing such a proliferation will only result in a fragmented and uncoordinated approach that only serves to undermine the overall policy of prohibition of jamming devices.

PROPOSED EXEMPTION ARRANGEMENTS FOR DRONE JAMMING DEVICES FOR LAW ENFORCEMENT AGENCIES

57. Optus appreciates that the misuse of drone technology is an escalating issue that needs to be addressed on multiple fronts and that a trial of drone jammers is part of determining which solutions are effective and usable in practice.
58. However, as acknowledged by the ACMA *“Jamming devices exploit the reliance of drones on spectrum, and deployment of these devices has the potential to adversely affect licensed radiocommunications services.”*³ This remains true irrespective of whether it is authorised or subject to unlawful use.
59. The proposed exemption arrangements demonstrate that previous concerns have been ignored and are now being realised. Namely, that the previously allowed AFP exemption for drone jamming devices has now set a precedent that removes transparency on the devices being operated; the ways risk to adjacent licensees is managed; **[CiC]** and expanded scope for which the exemption would apply.
60. Optus also holds concerns over the piecemeal approach to expanding the use of exemption applications currently being taken by the ACMA. Class licencing already creates challenges for interference monitoring, management and enforcement – adding exemption overlays will simply compound this issue, particularly where it applies over a prolonged period or for undefined parameters. This highlights the lack of transparency and clarity to which the approach to assessing exemption applications seems to have taken in recent times.
61. In addition, Optus is concerned that it remains unclear whether the impact of interference on adjacent frequency bands has been considered. The open nature of the proposed exemption removes the transparency related to notification of any special events or locations within which services may be impacted by minor interference. The current lack of technical detail also makes evaluation of this proposal difficult. More technical information is required to ensure there will be no unexpected or prolonged interference impacts on devices in spectrum licensed frequencies.
62. In summary,
- (a) Optus does not oppose the intent of exemption arrangements being introduced but considers that more transparency is required to ensure that the rights of other spectrum licensees will not be adversely affected. There should also be a notification requirement established as part of any exemption arrangement.
 - (b) The proposed exemption arrangements should include the requirement to manage risk to adjacent licensees, for example, **[CiC]** on a proposed geographic scope and relevant period in which use of jamming devices may be warranted.
 - (c) Further clarity should be provided regarding the areas and scope of certain activities, such as types of special events, to which this broad exemption is expected to apply.

³ ACMA, 2020, Radiocommunications exemptions for law enforcement use of drone jamming devices, Consultation Paper, May, p.1

More transparency should be provided to ensure limited impact on other radiocommunication users

63. [CiC]

64. [CiC]

65. To date, there have been strong bans on even importing jammer devices into the country, much less using them, because of the potential adverse impacts. With respect to the current proposed exemption for drone jamming devices, Optus concerns include:

(a) There is a lack of clarity as to how the regulators are going to monitor both the effectiveness and impacts from jammers;

(b) The potential for scope creep has not been addressed. Approving the exemption application for the AFP has set a precedent allowing other agencies to similarly ask for the same capability;

(c) [CiC]

(d) [CiC]

66. Optus therefore submits that the ACMA should adopt a more considered approach to allowing the operation of adverse devices (i.e. jammers of any kind) to proliferate.

Any extension of the existing exemption arrangements for the AFP should be considered on a separate case-by-case basis

67. The current exemption arrangements for the AFP are made through the *Radiocommunications (Unmanned Aircraft and Unmanned Aircraft Systems) Exemption Determination 2019* which:

(a) exempts possession and operation of jamming devices by specified AFP persons and related contractors to facilitate training, testing and maintenance activities in relation to the jamming devices; and

(b) [CiC]

68. [CiC]

69. Importantly, it sets an end date for the exemption arrangements to lapse after two years after it was made. This is due to expire in April 2021.

70. Network degradation impacts from unknown uses of jamming devices may be difficult to track. Without knowing when and where these devices are being used, we will be unable to correlate the information required to confirm whether use has led to network degradation.

71. The fact we have not raised any complaints may be due to insufficient information to correlate that a network degradation incident was due to a jamming device. This however does not support the assumption that operation of a jamming device does not cause undue interference on existing networks.

72. While we understand there has been a clear mandate from Government acknowledging *“the need to combat the unlawful use of drones and agreed to develop both short- and long-term measures to support law enforcement agencies in deploying counter-drone*

*capabilities*⁴ a strong case has not been established to support the expanded scope of the AFP exemption arrangements, and to other law enforcement agencies.

73. For example, the ACMA has loosely justified the expanded scope through:
- (a) Noting that the impact on other radiocommunication users will be minimal due to the low likelihood of drone jamming devices being activated;
 - (b) Recognition that the spectrum requirements for drones are becoming more varied and could conceivably operate across a number of Class-Licensed frequencies; and
 - (c) **[CiC]**
74. As such, the proposed *Radiocommunications (Police Forces – Disruption of Unmanned Aircraft) Exemption Determination 2020* is intended to only apply for up to two years under the following circumstances, that is,
- The proposed determination would apply to members of the AFP, members of a state or territory police force, and a person who has entered into a contract with the AFP or a state or territory police force, in circumstances involving testing and maintenance of drone jamming devices.*
- The proposed determination would also apply to members of the AFP or of a state or territory police force operating the device in order to disrupt or disable a drone.*⁵
75. **[CiC]**
76. **[CiC]**
77. **[CiC]**
78. **[CiC]**
79. **[CiC]**
80. **[CiC]**
81. **[CiC]**
82. In summary, Optus recommends that the following changes to the proposed exemptions arrangements be considered:
- (a) **[CiC]**
 - (b) Potential impact on the operation of networks in adjacent spectrum bands.
 - (c) Introduce a monitoring and reporting framework, similar to what has been applied during the mobile jammer trials. This would apply for both usage and the number of devices deployed under the exemption. Using this information, the ACMA

⁴ See: <https://www.coag.gov.au/meeting-outcomes/coag-meeting-communique-12-december-2018>

⁵ ACMA, 2020, Radiocommunications exemptions for law enforcement use of drone jamming devices, Consultation Paper, May, p.8

could produce a public summary of how many times an exemption has been used, and how many devices have been used during the reporting period.

FACILITATING RNSS REPEATER TRIALS IN ROAD TUNNELS

83. Optus acknowledges the comment that many road users rely on RNSS signals for navigation and other services. Furthermore that emergency services rely heavily on the availability of RNSS signals when responding to incidents.
84. The ACMA similarly acknowledges there are other applications where the deployment of RNSS repeaters may also provide a public benefit, and that a trial of RNSS repeaters in road tunnels is part of determining which solutions are effective and usable in practice.
85. However, the proposed means of varying the RNSS Jamming Device Prohibition declaration to give this effect does not directly address the intent set out in the consultation paper. That is, nothing in the proposed variation limits the exemption for GPS repeaters for the purposes of facilitating RNSS repeater trials in road tunnels.
86. Optus therefore submits that the exemption for GPS repeaters for the purposes of a trial in road tunnels will need more consideration because current telecommunications networks also use GPS for other activities and not just for location purposes.
87. In addition, Optus is concerned that it remains unclear whether the impact of interference on other GPS applications has been considered. For road tunnels this will be an issue especially at the entry/exit portal if this is not managed properly. The proposed GPS repeater exemption also does not seem to cover the situation where interference is caused by GPS repeaters.
88. In summary,
 - (a) Optus does not oppose the intent of amendments to the prohibition declarations being introduced but considers that more transparency is required to ensure that the rights of other users will not be adversely affected. The robustness of any assessment for proposed changes to prohibition declarations should also be held to a greater standard than an exemption application.
 - (b) There is insufficient information and evidence to support the unilateral exemption of RNSS repeaters as a specified device type to be removed from the RNSS Jamming Device Prohibition. The proposed amendment represents a disconnect with the expressed intent of facilitating RNSS repeater trials in road tunnels, and in doing so also potentially opens RNSS repeaters to be deployed in uncontrolled environments and for other uses.
 - (c) Optus also does not support the introduction of any 'light' licensing arrangements, such as the Ofcom approach for Indoor GPS Repeaters. Current 'class licensing' type arrangements are not appropriate for this use.
 - (d) As an interim measure, an exemption application may be considered to facilitate a trial to test the interference impact on networks. This should be subject to a limited duration and only be applied to specified locations.

Indirect impact of RNSS repeaters

89. The ACMA notes that *"The introduction of RNSS signal availability in road tunnels would not deny any competing uses of spectrum, since there are currently no RNSS signals*

successfully being provided in those environments.”⁶ However this does not address the potential impact or interference the operation of RNSS repeaters may have on other radiocommunication users and GPS applications operating in the same environment.

90. [CiC]

91. [CiC]

92. [CiC]

93. [CiC]

94. [CiC]

95. [CiC]

96. [CiC]

97. [CiC]

98. The potential risk of GPS interference on network operations can also lead to unintended consequences. For example, the reliance on GPS timing is not inconsequential. In 2016, it was reported that ‘a thirteen millionths of a second’ error in a GPS satellite in the US led to significant network disruption on GPS time-dependent timing equipment on a global basis. Notably, the incident did not go unnoticed: *“In parts of the U.S and Canada, police, fire, and EMS radio equipment stopped functioning. BBC digital radio was out for two days in many areas, and the anomaly was even detected in electrical power grids.”⁷*

99. It follows that a trial may be warranted to understand the interference impact on networks, and other GPS applications and users. This can be facilitated through an exemption application and subject to limited circumstances, such as a limited duration and only be applied to specified locations.

100. Only after the completion of successful trials and accompanying results that show no detrimental interference impacts on networks, can the discussion for a wider scope or longer-term exemption properly commence. It is not appropriate that these devices be removed from the prohibition declaration or even afforded a broad exemption without the requisite technical evidence to support any claims about its interference impact on networks. The next steps therefore may include establishing arrangements to expand the use of similar trials to other users or applications; however it is still too early to entertain these discussions at this stage.

Justification for the removal of RNSS repeaters is insufficient

101. The ACMA justifies this removal of RNSS repeaters on the basis that they are specially designed to improve RNSS signal reception, and that:

RNSS repeaters serve a legitimate purpose and, when deployed correctly, benefit RNSS service users. The correct operation of RNSS repeaters does not

⁶ ACMA, 2020, Facilitating trials of radionavigation-satellite service (RNSS) repeater devices in road tunnel networks, Consultation Paper, May, p.5

⁷ The Atlantic, “What happens if GPS fails?”, News Article, 13 June 2016, <https://www.theatlantic.com/technology/archive/2016/06/what-happens-if-gps-fails/486824/>

*reflect the reasons for prohibiting RNSS jamming devices, as set out in the Declaration.*⁸ **[Emphasis added]**

102. However there remains a significant disconnect between the ACMA' stated objectives of supporting GPS Repeaters trials in tunnels and **[CiC]** compared with what is currently set out in the proposed instruments. Optus is also concerned that removal of RNSS repeaters from the definition of a RNSS jamming device, without any commensurate process in-place to facilitate its operation in controlled environments, risks opening the 'flood-gates' for the proliferation and unfettered deployment of such devices.
103. It is not appropriate to introduce open-ended instruments as a means of facilitating equipment trials that have the risk of interfering with the operation of existing networks. Insofar that they are required, and deemed essential, trials could still be managed by exemption and the results of the trial used to determine the suitability of broader changes to current arrangements.
104. Similarly, Optus also does not support the introduction of any 'light' licensing arrangements, such as the Ofcom approach for Indoor GPS Repeaters. Under current licensing arrangements, the 'light' licensing approach in the UK is most similar to Class licensing arrangements in Australia which is not appropriate for this use. Optus agrees with the ACMA's position that *"there is insufficient data about real-life applications of the devices to show that RNSS repeaters meet threshold requirements for class licensing."*⁹
105. Optus considers that the removal of the RNSS device prohibition at this stage would be premature. Site specific and limited exemption to facilitate a trial is needed in the first instance before removal of the specified device from the Prohibitions Instrument can even be considered. The potential interference risk and impact is a wide-area issue and has the potential to cascade to both a combination of neighbouring sites and even adjacent networks operated by other parties.
106. Optus therefore submits that the exemption for GPS repeaters for the purposes of a trial in road tunnels will also need more consideration because current telecommunications networks also use GPS for other activities and not just for location purposes.
107. In addition, Optus is concerned that it remains unclear whether the impact of interference on other GPS applications have been considered. For road tunnels this may be an issue especially at the entry/exit portal if this is not properly managed. The proposed GPS repeater exemption also does not seem to cover the situation where interference is caused by GPS repeaters.

RNSS trials may be facilitated through an exemption application

108. While these devices are not designed to cause disruption to mobile networks there is still a potential for interference to networks that needs to be appropriately and effectively managed by the ACMA and all stakeholders. The removal of RNSS Repeaters from the Prohibition declaration does not recognise or address this interference risk.
109. The operation of any RNSS Repeater trials should be subject to authorisation to ensure sufficient transparency and oversight of any related activities relating to the deployment

⁸ ACMA, 2020, Facilitating trials of radionavigation-satellite service (RNSS) repeater devices in road tunnel networks, Consultation Paper, May, p.6

⁹ ACMA, 2020, Facilitating trials of radionavigation-satellite service (RNSS) repeater devices in road tunnel networks, Consultation Paper, May, p.8

of devices that may cause interference if their use is not carefully managed by the user, in co-operation and co-ordination with mobile network operators.

110. As an interim measure, Optus considers that RNSS repeater trials may be facilitated through the use of an exemption application to test the interference impact on networks. This should be subject to a limited duration and only be applied to specified locations.
111. Ideally, any trial should be collaborative in nature with close consultation between all stakeholders, and facilitated by the ACMA where necessary. This may include sharing information on the testing phases, placement of devices and the provision of timely data reports from the tests conducted. There should be a clear obligation for the trial operator to actively engage with MNOs during the trial phase and address any interference implications.