

SUBMISSION TO ACMA – TELECOMMUNICATIONS (MOBILE NETWORK COVERAGE MAPS) STANDARD 2026



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Introduction

Better Internet for Rural, Regional and Remote Australia (BIRRR) welcomes the opportunity to comment on the proposed Telecommunications (Mobile Network Coverage Maps) Standard 2026.

For rural, regional and remote (RRR) consumers, coverage maps are one of the primary tools used to determine whether a mobile service will work at their home, property, business or along regional roads. However, BIRRR members' lived experience consistently demonstrates that coverage maps often do not reflect real-world experience, leading to confusion, mistrust and poor consumer outcomes.

BIRRR supports ACMA's objective to improve consistency, transparency and comparability of mobile network coverage maps. Coverage maps also play an increasingly important role in consumer purchasing decisions, competition between providers (in particular marketing claims), and government infrastructure investment programs such as the Mobile Black Spot Program, making their accuracy and transparency essential.

The consultation paper correctly acknowledges that predictive modelling has inherent limitations and may not correlate with user experience. BIRRR strongly agrees with this assessment.

Predictive modelling should not be the sole data source

Mobile coverage maps currently rely primarily on carrier-led predictive modelling. While modelling can support national consistency, it cannot fully capture real-world user experience, particularly in rural and remote areas where coverage is influenced by factors such as terrain, vegetation, distance from towers, congestion, device variability and environmental conditions.

As a result, predicted coverage does not always align with the lived experience of consumers, especially in regional Australia where small changes in geography or distance can significantly affect service quality.

BIRRR therefore recommends that the standard recognise the role of real-world performance data in complementing predictive modelling.

International approaches demonstrate the value of incorporating consumer feedback and real-world data into coverage mapping. For example:

- The United States (US) *Federal Communications Commission (FCC) Broadband Map*¹ allows consumers to submit location-specific challenges to reported coverage.
- The United Kingdom (UK) *Ofcom Mobile Coverage Checker*² provides a mechanism for users to submit coverage feedback where predicted coverage does not reflect their experience.
- France's regulator ARCEP operates the *Mon Réseau Mobile*³ platform, which allows users to submit crowd-sourced mobile performance data through measurement apps to help validate operator coverage claims and improve transparency.
- Germany's regulator BNetzA uses the *Breitbandmessung* app⁴ to collect consumer-submitted network performance data, which is used to identify discrepancies between predicted and actual coverage and support regulatory oversight.

These examples highlight that several jurisdictions have moved toward centralised or regulator-managed coverage maps to ensure consistent methodology and improve consumer trust. A regulator-published map allows modelling, independent measurements and consumer feedback to be integrated into a single trusted platform rather than relying solely on separate carrier maps.

Whilst this consultation process is about carrier coverage standards for outdoor coverage, BIRRR recommends that the government and regulators should consider moving toward a regulator-published national mobile coverage map. A single

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<https://help.bdc.fcc.gov/hc/en-us/articles/10468786141723-How-to-Use-the-New-FCC-Mobile-Speed-Test-App-to-Challenge-Mobile-Coverage>

² <https://www.ofcom.org.uk/mobile-coverage-checker>

³ <https://en.arcep.fr/news/press-releases/view/n/mon-reseau-mobile-270924.html>

⁴ https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/EN/2025/20251215_5G.html

publicly managed map would allow coverage information to be presented in a consistent, comparable and transparent format, incorporating modelling from carriers alongside independent measurement data and consumer feedback. This approach would reduce confusion caused by differing methodologies between operators and provide consumers with a single trusted source of coverage information, as well as a comparison tool to promote competition.

Recommendations:

BIRRR recommends that the standard consider mechanisms to complement predictive modelling with real-world data, including:

- integration of crowd-sourced network performance data to incorporate lived experience from regional users
- a consumer reporting or challenge mechanism allowing users to report or challenge inaccurate coverage claims
- integration with the National Audit of Mobile Coverage to incorporate independently collected measurement data.
- standardised modelling methodology across carriers to ensure coverage comparisons are meaningful and consistent for consumers.
- consideration of a national regulator-published mobile coverage map that aggregates carrier modelling with independent measurement and consumer feedback.

Incorporating real-world performance data alongside predictive modelling would improve the accuracy, transparency and credibility of mobile coverage maps, particularly for RRR consumers.

Coverage categories must clearly explain real-world usability

A key issue raised by BIRRR members is that detecting a mobile signal is not the same as having a usable mobile service. Many rural consumers report being shown as having “coverage” on maps while they are unable to reliably use the service in practice.

Common experiences include signal bars appearing on a handset but an inability to place voice calls, frequent call dropouts, SMS failures, or unstable and unusable data connections. This issue has become more visible following the 3G shutdown, as consumers increasingly find that the presence of signal does not necessarily translate into reliable service.

The consultation paper emphasises that coverage maps should communicate the likely end-user experience and the activities that can be undertaken at a location. BIRRR strongly supports this approach, as consumers ultimately need to understand what coverage at a set location will allow them to do, such as make calls, send messages or access data, rather than simply whether a device can detect a radio signal.

Recommendations:

The standard should ensure coverage categories reflect usable service capability, not simply radio signal presence. Coverage maps should clearly communicate what users can realistically expect to do at a given location, including whether they can:

- make voice calls (including whether Triple Zero emergency calls can be reliably supported)
- send SMS messages
- load web pages or use mobile applications
- stream video or other high-bandwidth services.

These coverage levels should be communicated through clear and consistent terminology and colour coding that is easily understood by consumers (for example: good, variable / marginal, poor, and no coverage).

Clear visualisation for coverage requiring external equipment and indoor, outdoor and in-vehicle coverage

In rural and remote areas, Australia's large geographic distances, dispersed population and varied terrain often produce very different user experiences. BIRRR

recommends the standard requires clear distinctions between outdoor handheld coverage, indoor coverage, in-vehicle coverage and coverage that requires an antenna or repeater. Carriers' coverage maps often display coverage that is only achievable using an antenna or Cel-Fi repeater, and this is often not clearly disclosed to consumers.

Without clear differentiation, consumers may assume a coverage area means reliable everyday smartphone use, when the modelling may represent a much weaker signal scenario.

Recommendations:

BIRRR recommends the standard require coverage that clearly identifies if the following areas are good, variable / moderate, poor or none and if they require external equipment. The following areas should be visually differentiated (e.g. different colour layer) in an easily identifiable way for consumers to be able to clearly identify the differences

- outdoor coverage
- indoor coverage
- in-vehicle coverage
- coverage requiring an antenna or repeater
- no coverage

Transparency of modelling assumptions

BIRRR supports ACMA's proposal that modelling assumptions and caveats be published. However, these assumptions must be clearly visible and presented in a way that is understandable to consumers, not only disclosed in technical documentation.

Coverage maps should clearly communicate key factors that influence predicted coverage, including:

- outdoor vs indoor vs in-vehicle modelling assumptions and limitations
- terrain considerations
- congestion and network loading
- probability of service reliability at the edge of coverage
- handset dependency and device type assumptions (e.g. smartphone vs antenna-assisted service)

Without this transparency, coverage maps risk functioning as marketing tools rather than consumer information tools.

Recommendations:

Carriers should be required to provide simple consumer guidance alongside coverage maps explaining factors that commonly affect mobile usability. This could include information on how coverage may be influenced by distance from the tower, terrain and vegetation, building materials, network congestion, weather conditions, handset capability etc.

Providing this type of information supports connectivity literacy and helps consumers better interpret predicted coverage. International examples, such as the UK Ofcom⁵ mobile coverage checker, demonstrate how modelling assumptions and usage environments can be communicated in a more transparent and consumer-friendly way, including suggestions on how to improve coverage and how to utilise wi-fi calling.

Usability and consumer-friendly map design

Many rural consumers rely on coverage maps to determine whether a service will work before committing to contracts, purchasing equipment or installing antennas, making usability a critical consumer protection issue.

BIRRR frequently receives feedback from RRR consumers that mobile coverage maps are difficult to interpret and are not designed for real-world use outside metropolitan areas. Common issues include difficulty locating rural properties or

⁵ <https://www.ofcom.org.uk/mobile-coverage-checker>

stations, lack of recognisable landmarks such as roads, and waterways, difficulty interpreting coverage at property or paddock scale, interfaces designed primarily for urban street addresses rather than rural locations and limited ability to search using coordinates or non-standard addresses. BIRRR members also report that many rural localities are difficult to find within coverage maps, mobile small cell coverage areas are often not easily searchable, and tower or locality names displayed on maps do not always match the names commonly used by local communities.

Additionally, recent changes to the Telstra mobile coverage map require users to choose between checking coverage for an “Upfront Plan” or “Pre-paid / Other” plan. This introduces unnecessary confusion for consumers, as network coverage should not vary depending on the retail plan selected. If predicted speeds between plans are the reasoning for this separation, then this needs to clearly be called out on the coverage map.

These design limitations reduce the usefulness of coverage maps for rural consumers and can make it difficult to determine whether a service will work at a specific location.

Coverage map resolution can also affect usability. Many maps display coverage in large prediction grid cells, which may represent areas several kilometres wide. In rural environments, where terrain, vegetation and distance from towers can vary significantly across short distances, this can result in maps appearing to show coverage across a property when in reality service may only be available in limited areas.

Recommendations:

BIRRR recommends the standard include appropriate map resolution and prediction grid size so that coverage can be interpreted at meaningful geographic scales. Also set minimum consumer usability expectations for coverage maps, including the ability to:

- input GPS coordinates and search via a functionality that works without requiring a standard street address

- clearly see roads, landmarks and geographic features
- zoom to property-level scale, without losing landmarks
- have clear visual legends explaining coverage categories
- compare coverage across multiple carriers simultaneously

Signal strength thresholds and clarity of coverage claims

BIRRR notes the ongoing debate regarding the signal strength thresholds used to define mobile coverage. Industry submissions have raised concerns that some coverage maps may include areas where the predicted signal level is so weak that it does not deliver a usable mobile service for typical smartphone users. In these circumstances, a device may detect a signal but still be unable to reliably place calls, send messages or maintain a stable data connection.

The National Audit of Mobile Coverage examined the relationship between signal strength and service performance in the Australian environment and concluded that -115 dBm for both 4G (RSRP) and 5G (SS-RSRP) represents an appropriate lower bound for coverage that can reasonably deliver a usable service. The audit also assessed the probability of successful service initiation, including call setup success and data session establishment, finding that the likelihood of reliable service declines rapidly below this threshold.

BIRRR members with technical expertise have noted that extremely weak signal levels such as -122 dBm, which has been proposed by some operators, are only marginally above the radio noise floor and are unlikely to represent reliable handheld service in real-world conditions. Signals at this level are not representative of the experience most consumers would have without specialised equipment such as external antennas, boosters or signal conversion systems.

This distinction between signal detection and usable service is critical for consumers interpreting coverage maps. Signal levels in this range are far more likely to represent intermittent or poor connectivity rather than reliable service capability. In previous technology transitions, including the 3G shutdown, such weak signals were often described as “fortuitous coverage”. Thus, carriers did acknowledge that connections

may occasionally occur but cannot be relied upon for normal service use. Carriers cannot reasonably classify these signal levels as “fortuitous” when it suits network transitions or operators’ interests, while simultaneously presenting the same areas as covered on public coverage maps.

Coverage maps should therefore reflect the signal threshold at which a typical consumer device can reliably initiate and sustain voice calls or data sessions with a high and consistent probability of success, rather than the weakest signal a device may theoretically detect.

It is also important to recognise that many mobile services in regional and remote Australia are used in vehicles while travelling on regional and remote roads. Research⁶ examining in-vehicle mobile signal attenuation has shown that the vehicle body, window coatings, interior materials and handset placement inside the cabin can significantly reduce the signal strength experienced by a handset compared with open outdoor conditions. These factors can degrade the user experience when devices are used inside vehicles.

As a result, signal levels that may appear marginally usable outdoors may not reliably support voice or data services (such as loading maps and directions) inside a vehicle. Coverage modelling and signal thresholds used for public coverage maps should therefore account for vehicle penetration loss and in-vehicle attenuation, particularly along regional road corridors where consumers rely on mobile connectivity for navigation, safety and emergency communications.

This consideration is consistent with the National Audit of Mobile Coverage methodology, which used extensive drive-testing across regional and remote Australia to assess real-world network performance and service initiation outcomes rather than relying solely on theoretical coverage modelling.

Clear signal strength thresholds and standardised definitions will help reduce inconsistent coverage claims across carriers, improve transparency and ensure that

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<https://www.scribd.com/document/894125279/In-Car-Mobile-Signal-Attenuation-Report#:~:text=The%20report%20details%20a%20study%20conducted%20by,experience%20for%20mobile%20phone%20usage%20in%20vehicles>

coverage maps represent realistic consumer experience rather than theoretical signal reach. As Australia moves toward long-awaited Universal Service Obligation (USO) reform, it will be increasingly important that coverage maps accurately reflect usable service availability, enabling governments and universal service providers to clearly identify communities and locations that remain without reliable mobile coverage and ensure appropriate support mechanisms are in place.

Recommendations:

Regardless of the final signal thresholds adopted, BIRRR recommends that coverage categories and maps:

- adopt clear and consistent signal strength thresholds across carriers, aligned with the service experience categories defined in the standard
- ensure thresholds reflect realistic handheld service performance, consistent with the National Audit of Mobile Coverage findings that -115 dBm represents the lower bound of usable service, and avoid mapping coverage at levels unlikely to reliably support calls, SMS or data
- clearly distinguish between coverage levels (Good, Moderate/Variable, Poor, and No Coverage) and visually differentiate indoor, outdoor and in-vehicle coverage, including areas requiring external equipment such as antennas or repeaters
- enable users to view coverage by usage environment (indoor, outdoor and in-vehicle), similar to the approach used in the Ofcom Mobile Coverage Checker in the UK, allowing consumers to better understand how coverage may vary depending on how and where a device is used.
- ensure thresholds appropriately account for in-vehicle conditions, recognising that vehicles introduce additional signal attenuation and that coverage should represent the ability to initiate and sustain service while travelling
- enable consumers to compare coverage across carriers using consistent thresholds and categories, and clearly distinguish between predicted coverage and measured performance data, where available

Consumer confidence in coverage maps

Ultimately, the success of the proposed standard will depend on whether it improves consumer trust in mobile coverage information. For RRR consumers, the gap between predicted coverage and lived experience remains significant. BIRRR regularly receives feedback from consumers who rely on coverage maps to determine whether a service will work at their home, property or along regional roads, only to discover that the service performs very differently in practice. This issue is particularly evident on regional roads, where maps may suggest coverage but drivers experience long sections without usable service.

This issue has become more visible as rural consumers increasingly adopt alternative connectivity solutions to compensate for gaps in terrestrial mobile coverage following the 3G shutdown. For example, there has been significant growth in the use of roaming Starlink Mini terminals across RRR Australia, particularly for in-vehicle and in-motion connectivity while travelling on regional roads or working across large properties. Recent changes to Starlink's \$8.50 standby plan, including restrictions on in-motion use, have generated considerable discussion among RRR users, particularly where purchasing decisions were made based on earlier service expectations. Situations such as this highlight the importance of clear, transparent and reliable information about connectivity capabilities.

When coverage maps or connectivity claims over-predict usability, consumers may select providers based on inaccurate expectations, purchase equipment that does not work at their location, incur additional costs attempting to improve connectivity, and ultimately lose confidence in published coverage information.

For RRR consumers this is more than an inconvenience. Mobile services are often relied upon for safety-critical communications, including the ability to contact Triple Zero when travelling, working on properties or living in isolated areas. Where coverage maps suggest service availability but the network cannot reliably support calls or messaging, consumers may incorrectly assume they have communications capability when they do not.

Inaccurate coverage mapping can also create a false confidence effect, where consumers believe they have reliable coverage when the service cannot consistently support voice or messaging. In rural environments this can have serious consequences, particularly when individuals rely on mobile connectivity while travelling long distances or responding to emergencies.

The need for accurate coverage information will become even more important as new technologies emerge. With the development of satellite-to-mobile services and the proposed Universal Outdoor Mobile Obligation (UOMO) framework, consumers may increasingly face multiple overlapping coverage layers. Coverage maps should clearly distinguish between different technologies, including terrestrial mobile networks and emerging satellite-to-mobile services, so consumers can understand the capabilities and limitations of each layer. Without clear and consistent information, rural users may struggle to determine what services are actually available and whether those services will reliably support voice, messaging or emergency communications.

Recommendations:

Improving the accuracy, transparency and usability of coverage maps is therefore not only a consumer information issue, but also a public safety and resilience issue for rural and remote Australia. Strengthening the proposed standard will help ensure coverage maps function as trusted consumer decision tools, rather than simply representations of predicted network capability.

Frequency of Coverage Map Updates

BIRRR supports ACMA's proposal that coverage maps be updated regularly and considers quarterly updates to be the minimum acceptable frequency. Coverage maps should also be updated following material network changes, including major infrastructure upgrades, network sharing arrangements, or the introduction or withdrawal of technologies that affect consumer coverage.

Coverage Maps for MVNOs

BIRRR supports the requirement that Mobile Virtual Network Operators (MVNOs) publish clear and easily accessible coverage maps for their customers. While it is reasonable that MVNO obligations may be less onerous where they rely on host network data, consumers should still be able to easily understand the coverage available on the network used by their provider. MNOs should therefore provide MVNOs with timely access to relevant coverage data to ensure consistent and accurate consumer information.

Access to coverage data for emergency services and public infrastructure planning

BIRRR supports the requirement that mobile network coverage maps allow emergency service organisations to extract underlying coverage data. To be useful for operational planning, this data should be machine-readable, geo-referenced and provided at a sufficient spatial resolution to enable accurate analysis of coverage gaps affecting emergency response.

BIRRR also recommends that the same data accessibility requirements apply to state and territory governments, as well as relevant public agencies responsible for infrastructure and regional development planning. Access to accurate and extractable coverage data would assist governments to identify connectivity gaps across regional transport corridors, rural communities and critical infrastructure locations, helping to inform telecommunications infrastructure upgrades, resilience planning and future investment decisions.

Ensuring that mobile coverage data can be accessed and analysed by both emergency services and government planning bodies would improve coordination across jurisdictions and support more informed decision-making about connectivity priorities in RRR Australia.

Conclusion

Coverage maps are only useful if consumers can trust the information they present. For RRR Australians, the gap between predicted coverage and lived experience remains significant. While the proposed standard is an important step toward improving consistency, it must also ensure that coverage maps reflect real-world usability, transparency and consumer experience, rather than theoretical signal presence.

To achieve this, BIRRR believes the final standard should ensure that mobile coverage maps:

- incorporate or enable crowd-sourced and consumer-reported performance data
- allow consumers to challenge inaccurate coverage claims
- clearly differentiate indoor, outdoor and in-vehicle coverage and areas with no coverage
- clearly identify areas where coverage requires antennas or boosters
- improve the usability and accessibility of coverage maps, including accounting for rural and regional use cases, including large properties and regional roads.
- ensure coverage categories reflect real-world service capability
- ensure coverage maps cannot be used as marketing tools that overstate service availability

Consistent national standards, along with consideration of a regulator-operated national coverage platform, would significantly improve transparency and provide consumers with a single trusted source of coverage information. A nationally managed map incorporating carrier modelling alongside independent measurement data and consumer feedback would enable meaningful comparison between providers, promote competition and reduce confusion caused by differing methodologies across carrier-operated maps.

Coverage maps should function as consumer protection and information tools, rather than marketing tools. At present, many carrier-operated maps primarily serve

the interests of the provider, with limited transparency around methodology and no clear mechanism for consumers to challenge inaccurate coverage claims. Without these improvements, coverage maps risk continuing to misrepresent available service in RRR Australia and undermine consumer confidence.

Ensuring mobile coverage maps accurately reflect real-world service capability is not only a matter of consumer transparency, but also an issue of public safety and resilience, particularly for rural and remote Australians who rely on mobile networks for essential and emergency communications. Strengthening the proposed standard will help ensure coverage maps function as trusted consumer decision tools and a reliable source of public information, rather than simply representations of predicted network capability.