



**Internet  
Australia**



## **C519:2004 End to End Network Performance for the STS**

We thank Communications Alliance for the opportunity to provide feedback on the End to End Network Performance for the Standard Telephone Service Code (C519). The quality of telephony services is of great importance to consumers and the community is reliant on industry and regulators to maintain and enforce a high quality of voice telephony.

Consumers cannot be expected to fully understand the complexity of technology that allows them to make calls and experience a high quality of voice telephony while doing so. However they need assurance that their provider puts in place systems and processes that ensure a high quality of voice telephony. This Code review comes at a time when consumers in rural and remote areas in the NBN fixed wireless and satellite footprint are increasingly concerned about the technology to be used in the delivery of the standard voice service in the future<sup>1</sup>. They need the certainty that whatever the technology, their services will continue to perform to a consistent standard that is underpinned by C519.

The telecommunications industry is experiencing rapid technological change that means consumers now access and use their telecommunications products and services at a much higher frequency than previously. While the underlying technology changes frequently, consumers continue to use voice telephone services to communicate daily for business, leisure and key day-to-day activities.

We believe that service performance standards, particularly with the special service that is telephony, play a key role in ensuring consumers are adequately protected and can expect quality and hassle-free experiences when using their telephone services. IP-enabled telephone services are still a Standard Telephone Service (STS).

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<sup>1</sup> See [Regional, Rural and Remote Communications Coalition policy statement](#)

While the underlying technology has changed for some (but not all) telephony services since C519 was last revised, the definition of a STS in legislation and in the Code makes it clear that telephony services provided over an IP-enabled network, including telephone services provided over the NBN, are still Standard Telephone Services<sup>2</sup>.

Outside the NBN, telephone services in rural and remote areas, including where the NBN is delivered by satellite and fixed-wireless technologies, continue to be delivered using the conventional technologies that C519 continues to address.

Similarly, public mobile services to which C519 applies are still mobile standard telephone services, even where the underlying technology that is invisible to the user includes an IP function rather than a traditional digital function.

For this reason we disagree with Communications Alliance's view that the Code no longer has any practical value. While circuit-switched technologies are declining, the services to which the Code is intended to apply – the STS – still describes the telephone services being provided to the majority of Australian consumers and businesses. Even where the access portion of a telephone service uses IP technologies, such services are still part of the PSTN (Public Switched Telephone Network). The PSTN is not constrained to the subset of circuit-switched technologies, but instead is formed from all telephone services that can be switched between multiple providers such that any-to-any connectivity can be established. IP-enabled telephone services, including cellular mobile services, are still part of the PSTN so long as they can call another service, irrespective of technology.

## **Performance of telephone services and the STS is important**

The STS has a special importance to the Australian people, and this is reflected in special attention made in applicable legislation.

One of the objects of the *Telecommunications Act 1997* is to ensure that standard telephone services and payphone services are supplied at performance standards that reasonably meet the social, industrial and commercial needs of the Australian community<sup>3</sup>.

The performance of telephone services is of such importance that the prohibition that industry codes and standards should not deal with design features and performance requirements has been explicitly set aside when dealing with matters of quality of standard telephone services.

C519:2004 is one of the industry codes that gives effect to these legislative provisions, and any proposal to remove the protections intended by the legislation must be examined very carefully by the ACMA, the Commonwealth Government, and all applicable stakeholders. ACCAN and Internet Australia submit that an enforceable Code such as C519 must continue to exist, and be updated periodically to continue to be applicable as delivery methodology changes, in order to fulfil these objectives and provisions of the Telecommunications Act.

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<sup>2</sup> Department of Communications, Information and the Arts, Examination of policy and Regulation Relating to Voice over Internet Protocol (VOIP) Services: Report to the Minister for Communications Technology and the Arts, November 2005, p. 19

<sup>3</sup> Telecommunications Act 1997, Section 1, Part 1, Section 1, Paragraph 3(2)(iii)

## C519 is not replaceable by G634

The current Code C519:2004 sets out the parameters and minimum quality levels that a standard telephone service must adhere to. The majority of the parameters and quality levels are neutral with regards to technology, and should apply irrespective of underlying technology. The underlying principles and rules of the code, including the 'Benefits to Customers' in clauses 1.9 – 1.11 and the Benefits to Industry expressed in clauses 1.12 to 1.14, continue to apply and are as vital now as they were when the Code was first developed. They are vital in providing an enforceable standard of network performance for consumers.

ACCAN and Internet Australia consider that C519 has not been effectively replaced by G634:2013 *Quality of Service Parameters for Voice over Internet Protocol Services* for the following reasons:

- Firstly, G634:2013 is a voluntary unenforceable guideline, with no ability to ensure consumers are not provided with inadequate telephone services that do not meet the quality levels specified. ACCAN and Internet Australia strongly recommend that consumers must continue to be protected by an enforceable Code relating to telephone service quality parameters.
- Secondly, G634 applies only to calls where both caller and receiver are connected by an all-IP end-to-end path. It does not apply to calls where one end is an IP-enabled telephone service and the other end is some other form of telephone service, such as an analogue line, an ISDN line, or some other digital or analogue non-IP technology. Customers have no way of knowing what the network interconnection path or technologies are between a caller and a receiver.
- Thirdly, consumers are generally unable to determine whether there is an IP-enabled segment in the end-to-end path of a telephone call or not. Consumers should not need to be fully conversant with the underlying method of implementation of a STS in order to enjoy the protection against poor quality services that a code like C519 provides. This is particularly evident with mobile services to which C519 is expected to apply, where the consumer should not be expected to be aware that terms such as 'VoLTE' mean that an IP segment makes that call ineligible for protection against poor quality implementations.
- Fourthly, C519 provides quality limits for parameters that are not included in G634. G634 is largely about issues of audio quality, whereas C519 includes many non-audio parameters important to the quality of experience of customers, including:
  - End-to-End Connection Setup Failure Rate
  - Post-Dial Delay,
  - Transmission Delay
  - Real-time Text Telephony Character Corruption Ratio
- Fifthly, G634:2013 explicitly does not cover quality levels for voice-equivalent services such as teletypewriter (TTY) terminals that continue to be used by the hearing-impaired, including using STS that are carried over IP-enabled networks. Repealing C519 without a replacement enforceable code that ensures that TTY and other telephony-equivalent services will continue to function would be a step backwards for consumers that continue to rely on this important functionality.

**Accordingly, ACCAN and Internet Australia urge that this code should not be deregistered but rather it should be revised and updated to cover IP technology, and should apply to all STS irrespective of underlying technology, described where possible in a technology-neutral manner. Guidelines such as G634 can continue to provide guidance on how to effectively implement and measure the quality levels for each technology such as IP forming the PSTN, with the technology-neutral performance levels still prescribed by the Code.**

If C519 is deregistered, there would be no guarantee that network service standards will remain of a high quality. We are concerned that this would result in a decreased quality of voice calls for consumers. The Code can be readily updated by amending the definitions outlining the technology that the code applies to, along with the measures of quality used in the Code that have little or no meaning on an IP-based network. ACCAN and Internet Australia suggest that such amendments should be technology-neutral to future-proof the Code against further technological changes<sup>4</sup>. Consumers using different technologies should be protected under the same Code to ensure there is no disparity in their rights.

The amendment of the Code should draw on industry and key stakeholder expertise that ensures technological and consumer concerns are addressed. Requirements for the 'quality of experience' that should be expected by consumers need to be set out, such as acceptable levels of echo, delay and loudness.<sup>5</sup>

The switch to the NBN has brought with it many glitches and hiccups that have greatly impacted consumers and left them with little recourse<sup>6</sup>. The Telecommunications Industry Ombudsman (TIO) 2016-2017 Annual Report<sup>7</sup> illustrated a 159.3% increase in complaints about services delivered over the NBN, representing 27,195 complaints. . When consumers switch to new underlying technologies such as the NBN, they need to know that they can expect and experience consistently performing levels of quality.

Similarly, consumers need to be able to distinguish between a dedicated voice service and regular VoIP services (such as those used for Skype)<sup>8</sup>. Consumers who want a fixed home line need to be able to clearly distinguish the two, via simple information that avoids reference to technical characteristics and industry jargon. A simple tick or other symbol that marks out dedicated voice services would be preferable. Consumers should be given the tools to understand the differences between the two services, in particular that a dedicated voice service will have priority over regular VoIP services.

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<sup>4</sup> ACCAN 2013, Submission to ACMA 'Managing quality of service issues for standard telephone services in an IP environment', p.5

<sup>5</sup> *ibid.*

<sup>6</sup> The Canberra Times 2017, Darren's NBN connection means no internet since October, and no idea of when it'll be fixed: <http://www.canberratimes.com.au/federal-politics/political-news/darrens-nbn-connection-means-no-internet-since-october-and-no-idea-of-when-itll-be-fixed-20171130-gzwjld.html>

<sup>7</sup> TIO 2017, 2016-2017 Annual Report:

[https://www.tio.com.au/\\_data/assets/pdf\\_file/0018/250911/Telecommunications-Industry-Ombudsman-Annual-Report-2017.pdf](https://www.tio.com.au/_data/assets/pdf_file/0018/250911/Telecommunications-Industry-Ombudsman-Annual-Report-2017.pdf), p.

<sup>8</sup> ACCAN 2013, Submission to ACMA 'Managing quality of service issues for standard telephone services in an IP environment', p.4

## Specific Comments on C519:2004

### Section 1 – Explanatory Statement

All parts of Section 1 are generic with relation to technology, and continue to apply to IP-enabled telephone services, and IP-enabled mobile services, without modification. The definition of a STS in clause 1.8, and the Benefits to Customers and Benefits to Industry, are as important now as they were when the Code was initially developed, and apply equally to STS provided using legacy analogue and TDM technologies as they do to a STS provided using IP-enabled technologies.

### Section 2 – Participants

We anticipate this section would be revised during a revision of the Code.

### Section 3 – Objectives and Scope

We note that clause 3.1 is neutral with regards to technology, and already applies equally to all services including where one end or both ends of an end-to-end call are carried using IP-enabled technologies

In this section, only clauses 3.2.8 and 3.2.9 need to be revised. ACCAN and Internet Australia strongly consider that standards for IP-based telephony services have clearly already matured, to the extent that the industry has already migrated their networks and services such that the majority of Australian calls are made through IP-enabled network sections. These outdated clauses should be removed, and C519 be made applicable to all STS irrespective of underlying technology.

### Section 6 – Performance Levels

Section 6 contains specifications for 10 performance parameters, of which only 5 are deemed to apply to mobile network services, and 5 are deemed to be not applicable to mobile networks.

We note that conventional fixed-network services, particularly in regional and rural areas where the conventional copper line network is not being replaced, will continue to exist, and so the 'Fixed Network' parameters and quality levels will continue to be required.

We note the structure of this table readily enables new forms of network and 'Network Applicability' to be added, such that a 'IP-enabled Fixed Network' column could be readily added, and the subset of applicable performance parameters selected, and the parameters that are not applicable to IP-enabled services can be de-selected.

At a minimum, quality parameters such as Connection Setup Failure Rate and Post-Dialling Delay continue to be important to consumers, and are not invalidated by a service having an IP-enabled segment in the path. Note 2 to Table 6-1 identifies that some parameters are not applicable to mobile networks "since they are fully digital". We contend that most IP-enabled telephone access services are also 'fully digital', and C519 should apply to these services in the same manner as they apply to digital mobile services.

## Sections 7-10

Sections 7 through to 10 are high level generic chapters that can and should continue to apply to C519 once it is revised to include IP-enabled STS and calls made to and from such STS, and appear to need little or no revision.

## Summary

ACCAN and Internet Australia submit that the aims and intentions of C519 are as applicable now as when it was first developed, and form an important protection mechanism for all telephone users in Australia, whether consumers, or small and large enterprises. IP-enabled STS are part of the PSTN, and require the same protections as legacy analogue and TDM-enabled STS.

C519 should not be deregistered. On the contrary, C519 should be updated and revised by removing outdated clauses 3.2.8 and 3.2.9, as IP-enabled telephone technologies have clearly matured to the extent that the majority of Australian telephone calls are carried over at least one network segment that uses IP technologies. C519 should be updated to recognise that IP-enabled telephone calls and IP-enabled STS services are as digital as public mobile network calls, and require similar protections. Including IP-enabled services within C519 appears to be relatively viable given the presence of digital mobile technologies within C519 already.

C519 is NOT replaceable by G634. G634 has a role in providing guidance on practical aspects related to measuring audio quality characteristics of IP telephone calls, however it is wholly unsuitable for governing the quality of a call where one end is carried over conventional or any non-IP technology, and cannot be enforced through ACMA if a service provider is determined to be providing a substandard service – irrespective of underlying technology.

The bipartisan policy of Governments since 1975 is that all Australians should be provided with basic voice services regardless of technology. The provision for the development of an enforceable Code to underpin that policy is how Governments support that commitment. A voluntary, unenforceable Guideline that does not address the many ways in which a voice service is delivered does not meet Government clear policy objectives; a revised C519 does.

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