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INDUSTRY CODE

ACIF C518:2006

CALL CHARGING AND BILLING ACCURACY

ACIF C518:2006 Call Charging and Billing Accuracy
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EXPLANATORY STATEMENT

This is the Explanatory Statement for the ACIF C518:2006 **Call Charging and Billing Accuracy Industry Code**.

This Explanatory Statement outlines the purpose of this Industry Code (the Code) and the factors that have been taken into account in its development.

The Australian Communications Industry Forum (ACIF) Network Reference Panel Working Committee 19 (NRP/WC19) on Call Charging and Billing Accuracy Revision developed the Code.

Background

Under Section 245 of the *Telecommunications Act 1991*, Carriers were required to comply with Technical Standards about network matters. AUSTEL had determined Technical Standard TS 029-1996, *Call Charging and Billing*, to be a Technical Standard under Section 244 of the *Telecommunications Act 1991*.

When AUSTEL became the Australian Communications Authority (ACA) in 1997, the AUSTEL Technical Standard TS 029-1996 continued to operate as an ACA Industry Standard under the *Telecommunications Act 1997* (the Act) in accordance with Section 52 of the *Telecommunications (Transitional Provisions and Consequential Amendments) Act 1997*. The *ACMA (Consequential and Transitional Provisions) Act 2005*, Schedule 4, Clause 8 enables references to pre-existing ACA instruments to be changed to ACMA instruments. Therefore, it contains provisions for ACA instruments to continue as an Australian Communications and Media Authority (ACMA) instrument under the Act.

Part 6 of the Act identifies the role of Industry Codes, developed by the industry, to apply to participants in the industry in relation to their telecommunications activities. The Act defines requirements for the development of Codes and their registration by ACMA.

One of the matters which may be subject to an Industry Code is identified in Section 113(3)(n) of the Act - "the accuracy of billing of customers of carriage service providers in relation to the supply of standard telephone services". Sub-paragraph 115(2)(a)(i) of the Act allows an Industry Code dealing with the accuracy of billing of customers of Carriers and Carriage Service Providers (CSPs) in relation to the supply of STS to have an effect on Telecommunications Network design and performance.

In accordance with Section 131 of the Act, an ACMA Industry Standard may be revoked if an Industry Code is expressed to replace that ACMA Industry Standard. The 1998 version of the Code (ACIF C518:1998) replaced TS 029-1996. The ACA registered ACIF C518:1998 under Section 117 of the Act and revoked TS 029-1996 in January 1999.

ACIF C518:2000 replaced ACIF C518:1998 and was registered by the ACA in April 2001.

Current Regulatory Arrangements

The ACA included ACIF C518:2000 on the register of Industry Codes in April 2001. On 1 July 2005 ACMA assumed the responsibilities of the ACA, including the maintenance of the register of Industry Codes.

Why Current Regulatory Arrangements are inadequate

The content of ACIF C518:2000 does not reflect the latest industry practice for services and billing.

In addition, ACIF C518:2000 does not provide adequate clarity to Carriers, CSPs and independent auditors in defining some of the Code Rules. This has led to problems with interpretation of the Code and a subsequent potential inconsistency in how the Code is

implemented across different Carriers and CSPs e.g. use of live traffic, test call system, and/or wholesale/interconnect billing data.

How the Code Builds on and Enhances the Current Regulatory arrangements

ACIF has revised ACIF C518:2000 to reflect current industry practice in this version of the Code.

The Code replaces ACIF C518:2000.

What the Code will Accomplish

The Code specifies the requirements for checking the accuracy of call charging and billing of the STS in a multi-service deliverer, multi-network environment in Australia.

The Code is intended to be a significant part of the industry approach to self regulation of call charging and billing accuracy for the STS. The Code however, is not the only mechanism by which industry self-regulation will be achieved. The Code provides visible and specific criteria through which the effectiveness of industry self regulation of call charging and billing accuracy can be monitored.

In a competitive market, many new and different call charging options are continually introduced, some of which may apply only to a single customer or group of customers, for either a defined or ongoing period. The Code requires a representative sample of these options to be tested as a part of complying with the Code.

How the Objectives will be Achieved

The objectives will be achieved through:

- (a) Setting of operational limits for Billing Accuracy Parameters and Performance Indicators;
- (b) Code management, including compliance reporting, Code awareness and the ACIF Code compliance regime;
- (c) Verification procedures - such as testing and monitoring;
- (d) Independent assessment of the processes deployed by a Carrier or CSP to provide integrity to self attestations of compliance; and
- (e) Provision for Carriers or CSPs to prove compliance through self attestation.

Anticipated Benefits to Consumers

The Code will assure customers, Regulators and Government that Carriers and CSPs provide an acceptable level of overall accuracy in the calculation of call charges. The Code is intended to give customers confidence that call charging and billing is correct.

Anticipated Benefits to Industry

The Code will benefit industry by providing an industry framework for Carriers and CSPs to demonstrate compliance of the call charging and billing accuracy of their STS. The minimum requirements in the Code ensure that Carriers and CSPs have the same benchmark for testing their call charging and billing accuracy parameters; and therefore achieve a consistent industry approach to assessing call charging and billing accuracy.

Anticipated Cost to Industry

The compliance processes defined in the Code have been developed to minimise the associated cost to Carriers and CSPs by adopting a regime of self-attestation to demonstrate compliance.

However, there will be costs as a Carrier or CSP is required to conduct testing and to obtain an independent assessment of the processes it has deployed to demonstrate compliance.

2006 Revision

ACIF C518:2000 was revised by the ACIF Call Charging and Billing Accuracy Revision Working Committee (NRP/WC19), whose terms of reference included:

- (a) the simplification of compliance requirements;
- (b) the refinement of measurement methods;
- (c) clarification of call charging options for demonstrating compliance;
- (d) an update of the reference for timing e.g. alternate definitions of time sources; and
- (e) the introduction of a definition of the term "circuit switched".

The 2006 revision of ACIF C518:2000 included the following significant changes:

- (a) aligns the format of ACIF C518 with other ACIF Codes;
- (b) removes the requirement for an independent auditor and replaces it with an independent assessor (refer to clauses 5.2.1 and 5.2.2);
- (c) introduces a requirement for an assessment of the testing process by the independent assessor rather than an audit of test results;
- (d) introduces a minimum requirement under the representative calling pattern for the Test Plan (refer to clause 4.2.6) that is more prescriptive than before and clarifies related definitions of parameters;
- (e) clarifies the term Circuit Switched Network with a more technology neutral definition; and
- (f) clarifies the use of input data from live traffic and wholesale billing sources.

End of Explanatory Statement

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1 GENERAL

1.1 Introduction

- 1.1.1 Section 112 of the *Telecommunications Act 1997* (the Act) sets out the intention of the Commonwealth Parliament that bodies and associations in the telecommunications industry develop Industry Codes relating to the telecommunications activities of those bodies.
- 1.1.2 The development of the Code has been facilitated by ACIF through a Working Committee comprised of representatives from the telecommunications industry, Government regulatory agencies, and consumer groups.
- 1.1.3 The Code should be read in the context of other relevant Codes, Guidelines and documents.
- 1.1.4 The Code should be read in conjunction with related legislation, including:
- (a) the Act;
 - (b) *the Telecommunications (Consumer Protection and Service Standards) Act 1999*;
- 1.1.5 If there is a conflict between the requirements of the Code and any requirements imposed on a supplier by statute, the Carrier or Carriage Service Provider (CSP) will not be in breach of the Code by complying with the requirements of the statute.
- 1.1.6 Statements in boxed text are a guide to interpretation only and not binding as Code rules.
- 1.1.7 The key components of a Carrier's or CSP's call charging and billing system are:
- (a) Recording, collection and transfer of call details; and
 - (b) Calculation of call charges
- Recording of call details is a function of network operations support system of the Carrier's or CSP's Telecommunications Network, whereas the collection, transfer and call charges calculation is typically performed in information technology business support systems independent of the Carrier's or CSP's Telecommunications Network.
- 1.1.8 At a very basic level, the overall accuracy of the call charging and billing process is determined by the accuracy of two sub-processes:
- (a) the accuracy of input data to the call charging and billing process including alignment of the relevant components of a Carrier's or CSP's Telecommunications Network with UTC(AUS); and
 - (b) the operating integrity of the call charging and billing process.

1.2 Registration with ACMA

The Code is to be submitted to ACMA for registration pursuant to section 117 of the Act.

1.3 Scope

- 1.3.1 The Code applies to all Carriers and CSPs that supply a STS across:
 - (a) a Public Fixed Circuit Switched Network (CSN); or
 - (b) a Public Mobile CSN.
- 1.3.2 The Code addresses the call charging and billing accuracy of the STS.
- 1.3.3 The Code specifies the minimum Performance Indicators in relation to Billing Accuracy Parameters of a Carrier's or CSP's call charging and billing system.
- 1.3.4 The Code does not address the call charging and billing accuracy of other carriage or content services.
- 1.3.5 The Code does not apply to discounts which apply to volumes of calls.
- 1.3.6 The Code covers charging options that are offered to the public at large or to a Carrier's or CSP's entire customer base irrespective of the customer segment designated by that Carrier or CSP.
- 1.3.7 The Code does not apply to packages individually negotiated between the Carrier or CSP and the customer.

1.4 Code review

Review of the Code will be conducted after 5 years of the Code being registered by ACMA and every five years subsequently.

2 ACRONYMS, DEFINITIONS AND INTERPRETATIONS

2.1 Acronyms

For the purposes of the Code, the following acronyms apply:

ACA	Australian Communications Authority
ACIF	Australian Communications Industry Forum
ACMA	Australian Communications and Media Authority
AUSTEL	Australian Telecommunications Authority
CSN	Circuit Switched Network
CSP	Carriage Service Provider
ITU	International Telecommunications Union
PMTS	Public Mobile Telephone Service
STS	Standard Telephone Service
UTC(AUS)	Coordinated Universal Time (Australia)

2.2 Definitions

For the purposes of the Code, the following definitions apply:

Act

means the *Telecommunications Act 1997*.

Additional Call Error

means a Test Call, which is recorded on the bill for which either no corresponding valid Test Call was generated or no equivalent source of calling data exists that can, independently of the recording, collecting and transfer process deployed, validate that a Test Call occurred; and which is not within the tolerance levels specified in Table 3-1.

Additional Call Performance Indicator

means the sum of the number of Additional Call Errors during the observation period charged and billed to the service under test, which exceed the applicable tolerance levels in Table 3-2.

Billing Accuracy Parameter

means any one of the following which are used to determine whether a Test Call is accurately billed and charged. Tolerance levels specified in Table 3-1 take into account what is observed by the Test Call system or independent source of Test Call data and what is recorded by the Carrier's or CSP's call charging and billing system. The Billing Accuracy Parameters are:

- (a) Call Start Time Error; or,
- (b) Call Duration Error; or,
- (c) Called Number Error; or,
- (d) Rated Price Error; or,
- (e) Additional Call Error; or,
- (f) Missing Call Error.

Call Duration

means the time period between Call Start Time and Call End Time.

Call Duration Error

means a Test Call with a Call Duration billing record which is not within the tolerance levels specified in Table 3-1 for the Call Duration of the Test Call.

Call Duration Performance Indicator

means the sum of the number of Test Calls during the observation period which exceed the applicable Call Duration accuracy limits in Table 3-2.

Call End Time

means the time of day/date at which the calling party terminates the Test Call or, if the calling party fails to clear, the time of day/date at which network time-out occurs for the Test Call.

Call Record Charging

means a method which uses a data record of the Test Call details to determine the charge for the Test Call, timed or untimed.

Call Start Time

means the time of day/date at which the called party answers the Test Call or, when a long distance pip tone is applied upon Test Call answer, the time of day/date at which the pips cease.

Call Start Time Error

means a Test Call with a Call Start Time billing record which is not within the tolerance levels specified in Table 3-1 for the Call Start Time of the Test Call.

NOTE: Previous versions of ACIF C518 referred to the Call Start Time Error as time of day/date error.

Called Number Error

means a Test Call with a called number billing record, which is not the test number dialed, and which is not within the tolerance levels specified in Table 3-1.

Carriage Service Provider

has the meaning given by Section 87 of the Act.

Carrier

has the meaning given by Section 7 of the Act.

Circuit Switched Network

means a Telecommunications Network in which a fixed bandwidth channel is established for, and dedicated to the duration of a communications session.

NOTE 1: In general, CSNs use time division multiplexing transmission techniques to establish a dedicated bearer channel (circuit) for end-to-end communication.

NOTE 2: This definition is based on the definition of Circuit Switched Network in ITU-T Recommendation Y.1001.

Code Signatory

has the meaning given by ACIF G514.

Complaint

A complaint lodged with ACIF regarding a telecommunications activity covered by a Code in relation to a Code Signatory.

External Testing Body

means a body that, among other functions:

- (a) is contracted by a Carrier or CSP to undertake tests of the Carrier's or CSP's Telecommunications Network for the purpose of conducting tests and collecting test data to verify compliance with the Code; and
- (b) has a member or certified practitioner of a professional organization (for example Engineers Australia or the Australian Computer Society) relevant to the telecommunications industry who will verify that errors were not introduced in undertaking the tests required by the Code.

Fixed Network Call

means a Test Call which originates and terminates within a Carrier's or CSP's Public Fixed CSN.

Immediate Circle

has the meaning given by section 23 of the Act.

Independent Qualified Assessor

An Independent Qualified Assessor means an assessor who:

- (a) is not within the Carrier or CSP's Immediate Circle; and
- (b) is not within the External Testing Body's Immediate Circle; and
- (c) is contracted by the Carrier or CSP; and who, in that Carrier's or CSP's opinion, has suitable qualifications to verify that the Test Plan of the Carrier or CSP has been prepared in accordance with the Code; and

(d) is a member of a professional organisation.

Local Call

means an Eligible Local Call as defined in section 106 of the *Telecommunications (Consumer Protection and Service Standards) Act 1999* and which is a Fixed Network Call from a geographic number to a geographic number.

Long Distance Call

means a Fixed Network Call from a geographic number to a geographic number and which is not a Local Call.

Missing Call Error

means a Test Call, which is not recorded on the bill but for which either a corresponding valid Test Call was generated or an equivalent source of calling data exists that can, independently of the recording, collecting and transfer process deployed, validate that a Test Call occurred; and which is not within the tolerance levels specified in Table 3-1.

Mobile Call

means a Test Call from a digital mobile service number to a digital mobile service number which originates and terminates within a Carrier's or CSP's Public Mobile CSN.

Network Recording Point

means the point in a Carrier's or CSP's Telecommunications Network where call details are recorded.

NOTE 1: Examples of a Network Recording Point include a local switch, a mobile switch, a transit switch.

NOTE 2: Previous versions of ACIF C518 referred to a network charging point. This is better described as a Network Recording Point to avoid possible confusion with the rating of a call.

Originating Test Point

means the interface between the Test Call sender and the originating switch.

NOTE: An example of a Test Call sender for live traffic could be a mobile phone.

Overall Performance Indicator

means the sum of the number of Test Calls during the observation period, which exceed the applicable accuracy limits in Table 3-2 of any of the Billing Accuracy Parameters billed to the service under test.

Performance Indicators

means minimum levels of performance which indicate that a Carrier's or CSP's overall accuracy of its call charging and billing system is operating within acceptable limits.

Performance Indicators in Section 3.2 are specified for Call Duration Errors, Additional Call Errors and Overall Performance Indicator.

The Performance Indicators apply to the overall call charging and billing system performance of Local Calls, Long Distance Calls and Mobile Calls.

Public Fixed CSN

means a CSN used to provide STS other than PMTS and mobile satellite telephony services.

Public Mobile CSN

means a CSN used to provide PMTS.

Public Mobile Telecommunications Service

has the meaning given by section 32 of the Act.

Rated Price Error

means a Test Call with a charge recorded on the bill which is not within the tolerance levels specified in Table 3-1, when the applicable tariff and Call Duration of the Test Call is used to calculate the charge.

NOTE: Examples are charge for a busy call, charge for a call with no answer, timed charge for an Untimed Call and charge for a non chargeable call such as a network recorded voice announcement.

Self Attested Statement of Compliance

means a statement by a Carrier or CSP that states:

- (a) Tests have been conducted according to the Carrier's or CSP's Test Plan; and,
- (b) Errors have not been introduced or omitted, either deliberately or accidentally, in the measurement and analysis of the results; and,
- (c) The testing results indicate that the Carrier or CSP meets the Performance Indicators specified in the Code.

Standard Telephone Service

has the meaning given by section 6 of the Telecommunications (Consumer Protection and Service Standards) Act 1999.

Statement of Process Compliance

means a statement made by a Carrier or CSP that states that an Independent Qualified Assessor has been engaged and who has assessed that the Test Plan has been prepared in accordance with the Code.

Telecommunications Network

has the meaning given by section 7 of the Act.

Test Call

means a call that is part of the Test Plan, including a live call and/or a call generated by a Test Call system and/or wholesale/interconnect billing data.

Terminating Test Point

means the interface between the Test Call receiver and the terminating switch.

NOTE: An example of a Test Call receiver for live traffic could be a mobile phone.

Test Plan

means documentation prepared by the Carrier or CSP in accordance with section 4.2 of the Code.

Timed Call

means a Test Call for which the charge is based on Call Duration.

Untimed Call

means a Test Call for which the charge is independent of Call Duration.

2.3 Interpretations

In the Code, unless the contrary appears:

- (a) a reference to a statute, ordinance, code or other law includes regulations and other instruments under it and consolidations, amendments, re-enactments or replacements of any of them;
- (b) words in the singular includes the plural and vice versa;
- (c) words importing persons include a body whether corporate, politic or otherwise; and
- (d) a reference to a person includes a reference to the person's executors, administrators, successors, officer, employee, volunteer, agent and/or subcontractor (including but not limited to, persons taking by novation) and assigns.

3 CODE RULES

3.1 Tolerance levels for Billing Accuracy Parameter errors

3.1.1 Table 3-1 lists the tolerance levels for each Billing Accuracy Parameter within which the sampled Test Calls must fall. These tolerance levels are based upon AUSTEL TS 029-1996 and ACIF C518:2000. The rationale for the determination of the tolerance levels is in clause 3.1.2.

TABLE 3-1
Tolerance levels – Billing Accuracy Parameters

Billing Accuracy Parameter	Test Call tolerances	
	Untimed	Timed
Call Start Time Error	+8.5, -5.5 sec	+8.5, -5.5 sec
Call Duration Error	Not Applicable	+1.5, -2.5 sec
Called Number Error	Nil	Nil
Rated Price Error	Nil	±1 cent
Additional Call Error	Nil	Nil
Missing Call Error	Nil	Nil

3.1.2 Figures 3-1 and 3-2 shows the test points where the Call Start Time of the Test Call is measured and the respective delays, for each event at those points, to reach the Network Recording Point. The Network Recording Point then observes these delayed events as the Call Start Time and Call End Time for calculating the Call Duration of the Test Call. The Call Duration calculated is the one that appears on the bill. Call Duration Error and Call Start Time Error tolerance levels used in Table 3-1 take account of the delays involved between Originating Test Point(s) and Terminating Test Point(s) and a Network Recording Point. The timing tolerance for the Network Recording Point clocks reflect the variation in the timing tolerance of switch clocks across the network that can be involved in the call charging and billing process.

FIGURE 3-1
Test Points and Timing Delays

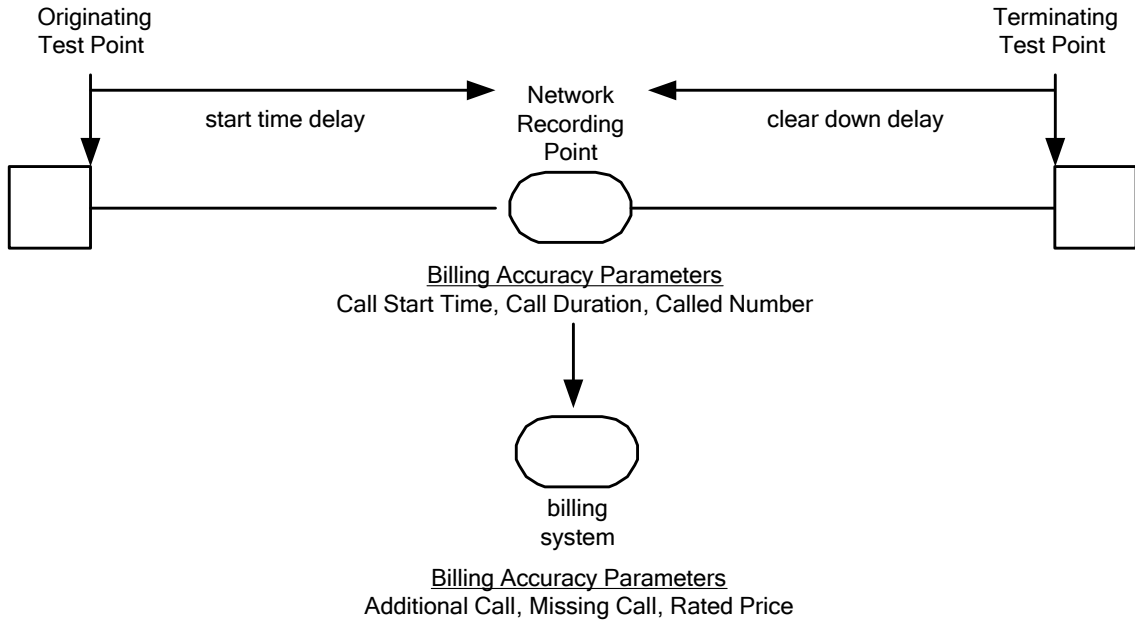
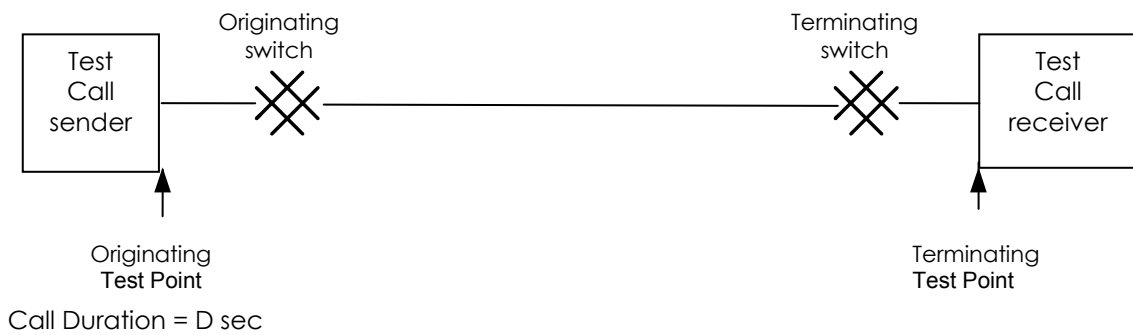


FIGURE 3-2
Indicative Test Call set up



timing accuracy of the Call Duration measurement = $t_a = \pm 0.5 \text{ sec}$

tolerance of Network Recording Point clocks across the network = $t_c = \pm 5.0 \text{ sec}$

timing accuracy of the Test Call system clocks calibrated to Coordinated Universal Time (Australia) denoted UTC(AUS) = $\pm 0.5 t_a = \pm 0.25 \text{ sec}$

NOTE: It is up to each Carrier or CSP to develop its own method for verifying their clock calibration. For more details, see National Measurement Institute URL at www.measurement.gov.au/time.

Call Start Time = $t_0 \text{ sec}$

Call Start Time observed at the Originating Test Point = $t_0 \pm 0.5 t_a \text{ sec}$

Call End Time observed at the Terminating Test Point = $t_0 + D \pm 0.5 t_a \text{ sec}$

Call Duration observed between the Originating Test Point and Terminating Test Point = $D \pm t_a \text{ sec}$

Call Start Time Error tolerance

For a time of day/date accuracy level: variation in start time delay = Δt_1

start time delay = mean start delay (t_s) \pm delay variation (Δt_1) = $1.5 \pm 1.5 \text{ sec digital}$

Call Start Time Error tolerance for test Call Start Time observed at the Network Recording Point = $+ 5 + 0.5 t_a + t_s + \Delta t_1$, $- 5 - 0.5 t_a + t_s - \Delta t_1 \text{ sec}$

Call Duration Error tolerance

timing offset of the Network Recording Point clock relative to the Test Call time = t_{off} , any set value between $+ 5$ and $- 5 \text{ sec}$

For a Call Duration accuracy level: i.e. 90 : 100,000 at the 95% confidence level

variation in delay start time delay = $\Delta t'_1$,

variation in clear down delay = $\Delta t'_2$,

start time delay = mean start delay (t_s) \pm delay variation ($\Delta t'_1$) $1.5 \pm 0.5 \text{ sec digital}$

clear down delay = mean clear down delay (t_{cd}) \pm delay variation ($\Delta t'_2$) = $0.5 \pm 0.5 \text{ sec}$

Call Start Time observed by the network = $(t_0 \pm 0.5 t_a) + t_{off} + (t_s \pm \Delta t'_1) \text{ sec}$

Call End Time observed by the network = $(t_0 + D \pm 0.5 t_a) + t_{off} + (t_{cd} \pm \Delta t'_2) \text{ sec}$

Call Duration Error tolerance observed by the network = $t_{cd} + 0.5 t_a + \Delta t'_2$, $- t_s - 0.5 t_a - \Delta t'_1 \text{ sec}$

3.2 Performance Indicators

- 3.2.1 The allowable number of inaccurately charged and billed Test Calls in a sample must be less than or equal to the accuracy limits in Table 3-2 at 95% confidence level across the sample of Test Calls. These accuracy limits are based on AUSTEL TS 029-1996 and ACIF C518:2000.
- 3.2.2 The Code does not specify Performance Indicators for an individual STS or individual customer or individual bill.
- 3.2.3 For the purpose of determining the Overall Performance Indicator level, a Test Call is either within the tolerance level of the Billing Accuracy Parameters or not within the tolerance levels of the Billing Accuracy Parameters. Thus a Test Call exceeding the tolerance levels in more than one of the Test Call Billing Accuracy Parameters , must be counted as a single error. Each Additional Call Error and Missing Call Error must be counted as a single error.

TABLE 3-2
Accuracy limits

Performance Indicator	Accuracy Limit at 95% confidence level	Accuracy Limit at 100% confidence level
Call Duration	90:100,000	60:100,000
Additional Call	3:100,000	1:200,000
Overall Performance Indicator	140:100,000	76:100,000

4 VERIFICATION OF CALL CHARGING AND BILLING ACCURACY

4.1 Measurement by Test Call system or live traffic

- 4.1.1 Compliance with the Code for call charging and billing accuracy by Carriers and CSPs must be determined by the generation of Test Calls through a Test Call system and/or extracted from live traffic and/or wholesale/interconnect billing data.

NOTE 1: Test lines can be directly connected to the Carrier's or CSP's own Telecommunications Network or test access lines from another Carrier or CSP may be used where appropriate, as commercially arranged and agreed among the Carriers or CSPs involved.

*NOTE 2: Input to the Carrier's or CSP's call charging and billing process can be sourced from within or external to the Carrier's or CSP's Telecommunications Network. Input data to the Carrier's or CSP's call charging and billing process sourced externally to the Carrier's or CSP's Telecommunications Network can come from:
(a) interconnected national Carriers and CSPs; or
(b) data supplied by national wholesale Carriers or CSPs*

- 4.1.2 Each Carrier or CSP is responsible for testing its own call charging and billing accuracy and associated Billing Accuracy Parameters as relevant to the Code.
- 4.1.3 Where more than one Carrier or CSP (e.g. interconnected national Carriers and CSPs, and/or data supplied by national wholesale/interconnected Carriers or CSPs) is responsible for the different Billing Accuracy Parameters of the end-to-end call charging and billing elements, the input data can be used if the the Carrier or CSP providing the input data can demonstrate compliance to the Code e.g. the Carrier or CSP providing the input data is a Code Signatory.
- 4.1.4 Compliance with the Code will involve testing of a Carrier's and CSP's call charging and billing processes from the Originating Test Point to the Terminating Test Point within a Carrier's or CSP's own Telecommunications Network.
- 4.1.5 A Carrier's or CSP's testing program may be undertaken either by:
- (a) that Carrier or CSP; or
 - (b) an External Testing Body contracted by that Carrier or CSP for this purpose.

4.2 Test Plan

- 4.2.1 A Carrier or CSP must have a Test Plan.
- 4.2.2 The Test Plan must meet the criteria in clauses 4.2.3 to 4.2.11.
- 4.2.3 The Test Plan must outline the processes and systems deployed by the Carrier or CSP to determine if the testing results indicate that the Carrier or CSP complies with the requirements of the Code.
- 4.2.4 Sample size and Test Call types

The sampling accuracy in the Test Plan must be either:

- (a) greater than or equal to the statistical measure of 95% degree of confidence; or
- (b) a sample size of a minimum of 18,000 Test Calls

for each of the following call types, as applicable:

- (i) Local Calls;
- (ii) Long Distance Calls; and
- (iii) Mobile Calls.

NOTE: A Carrier or CSP can determine the actual number of Test Calls required to achieve a 95% confidence level or use a sample size of 18,000 Test Calls.

Test Calls

- (a) to and from other Carriers' or CSPs' Telecommunications Networks; or
- (b) across different Telecommunication Networks of the same Carrier or CSP

may be used to fulfill the requirements of the Code where necessary.

NOTE: This is to allow Carriers or CSPs without national coverage to include Test Calls that terminate in areas where service is not provided but to where their customers can terminate calls to.

- 4.2.5 Testing timeframes
The observation period for the sampling must be at least one month and less than three months.
- 4.2.6 Representative calling patterns
- 4.2.6.1 The distribution and calling patterns of Test Calls, included in the testing process:
 - (a) should be determined by the Carrier or CSP; and
 - (b) must be broadly representative of the applicable call types;
 - (c) and should be based upon usage across a Carrier's or CSP's customer base.

NOTE: A Carrier/CSP may choose to outsource the determining of the distribution and calling pattern of Test Calls.

- 4.2.6.2 A minimum of four Network Recording Points must be tested unless the Network Recording Points that are tested cover more than 50% of the Carrier's or CSP's traffic as measured by:
- (a) total number of calls; or
 - (b) revenues; or
 - (c) subscriber numbers; or
 - (d) duration.
- 4.2.6.3 Test call durations can be grouped into blocks of up to 1 minute which can be deemed to be representative of all durations within the lower and upper call durations of that block.
- A minimum of four call duration blocks must be tested unless the call duration blocks that are tested cover more than 50% of the Carrier's or CSP's traffic as measured by total number of calls..
- 4.2.6.4 Test Calls must occur across all days of the week and hours of the day.
- 4.2.6.5 A minimum of four broadly representative rating plans must be tested unless the rating plans that are tested cover more than 50% of the Carrier's or CSP's traffic as measured by:
- (a) total number of calls; or
 - (b) revenues; or
 - (c) subscriber numbers; or
 - (d) duration.
- 4.2.6.6 Carriers or CSPs are required to re-assess whether the calling patterns of Test Calls are representative every three years and make required changes to ensure the Test Plan continues to meet the requirements of the Code.

NOTE: When determining the Test Call sample, each of the parameters for establishing a representative sample can be determined, and Test Calls assigned, without needing to cross reference to other parameters.

- 4.2.7 The effects of faults on the ability to make and/or receive Test Calls or fraudulent use of the STS may be excluded from test results.

Examples are:

- (i) Illegal access to the STS to make a fraudulent call; or*
- (ii) Atmospheric conditions affecting the connections; or*
- (iii) failure of a Test Call sender and/or Test Call receiver.*

- 4.2.8 Validation of independence of test data source
- The Test Call process used by the Carrier or CSP must use a source of input data independent to the call charging and billing systems processes to match billing data against and subsequently demonstrate compliance with the Code.

- (a) For Carriers or CSPs deploying a Test Call system, independence is validated when the following criteria are met:
 - (i) The Test Call system produces records of calling data as generated by each Test Call sender. The input data generated by the Test Call sender(s) is independent from the recording, collecting, transfer and rating of a call where that Carrier or CSPs undertakes each of these activities; and
 - (ii) The Test Call system is aligned to UTC(AUS).
- (b) For Carriers or CSPs using live traffic extraction and/or wholesale/interconnect billing data, independence is validated when the input data source used for compliance with the Code is independent from the recording, collecting, transfer and rating systems of a Test Call where that Carrier or CSP undertakes each of these activities. Examples of such independent input data sources include:
 - (i) Signalling data aligned to UTC(AUS) and the signalling source data is captured to construct Test Call data records for verification; or
 - (ii) Accurate data files provided by a Code Signatory to the Carrier or CSP prior to any processing of that data being undertaken by the Carrier or CSP, such as in a wholesale/interconnect arrangement and the source data is captured to construct Test Call data records for verification.

4.2.9 Validation of billing data

Where a Carrier or CSP uses billing data other than the bill generated by its billing system, that Carrier or CSP must demonstrate that the billing data used to show compliance with the Code is an accurate representation of the data on the bill.

4.2.10 Billing Accuracy Parameters validation

The Test Plan must outline the Test Call process used by the Carrier or CSP to determine whether a Test Call has exceeded the error levels for each of the Billing Accuracy Parameters. The Test Call process must:

- (a) generate a valid result;
- (b) generate a reliable result; and
- (c) be confident errors cannot be introduced into the measurement process.

4.2.11 Performance Indicators validation

The Test Plan must outline the Test Call process used by the Carrier or CSP to determine whether the accuracy requirements of the Call Duration Performance Indicator, Additional Call Performance Indicator and the Overall Performance Indicator have been met. The Test Call process must:

- (a) generate a valid result;

- (b) generate a reliable result; and
- (c) be confident errors cannot be introduced into the measurement process.

5 CODE ADMINISTRATION AND COMPLIANCE

5.1 Compliance Procedures

- 5.1.1 To become a Code Signatory, a Carrier or CSP is required to demonstrate compliance with the Code by submitting the following documents to ACIF at the time of becoming a Code Signatory:
- (a) An initial Self Attested Statement of Compliance; and
 - (b) An initial Statement of Process Compliance
- 5.1.2 Having provided the initial Statement of Process Compliance and initial Self Attested Statement of Compliance to ACIF, thereafter, ongoing Self Attested Statements of Compliance are required under the Code. The intention of the ongoing Self Attested Statements of Compliance is for the Code Signatory to report to ACIF that it complies with the Code on an ongoing basis.
- NOTE: Section 5.4 addresses arrangements for non compliance.**
- 5.1.3 Code Signatories must retain records of test results and Test Plans for a minimum period of three years.
- 5.1.4 A Carrier or CSP intending to become a Code Signatory, and that demonstrated compliance with ACIF C518:2000 when it was in force, is permitted under the Code to demonstrate compliance with the Code at the time of Code sign-up by submitting an initial Self-Attested Statement of Compliance to ACIF and does not need to provide an initial Statement of Process Compliance to ACIF at time of Code sign-up.

5.2 Statement of Process Compliance

- 5.2.1 The Statement of Process Compliance is prepared by the Code Signatory which states that an Independent Qualified Assessor has determined that the Test Plan has been prepared by the Code Signatory in accordance with the requirements of the Code.
- 5.2.2 Following becoming a Code Signatory, any material changes subsequently made to the Test Plan require a Code Signatory to submit a new Statement of Process Compliance.

Subsequent Statements of Process Compliance submitted by a Code Signatory should state that the changed Test Plan has been prepared in accordance with the requirements of the Code. However, subsequent Statements of Process Compliance require Code Signatories to have only the material changes to the Test Plan reviewed by an Independent Qualified Assessor.

NOTE 1: Examples of material changes to the Test Plan include, but are not limited, to:

- (a) Change from the use of a Test Call system to live traffic to demonstrate compliance or vice versa; or

(b) *Change to software used to determine whether Billing Accuracy Parameters have been exceeded.*

NOTE 2: An example of a change to the Test Plan that is not material could include, but is not limited, to:

(a) *Changes to update the Test Call schedule to ensure the sample continues to be representative as defined in the Code (e.g. testing of a new tariff/rating plan)*

Subsequent Statements of Process Compliance should be submitted by a Code Signatory to ACIF with the next, ongoing, annual Self Attested Statement of Compliance.

5.3 Ongoing Annual Self Attested Statement of Compliance

- 5.3.1 A Code Signatory must demonstrate ongoing compliance with the Code by submitting an ongoing annual Self Attested Statement of Compliance to ACIF.
- 5.3.2 The ongoing annual Self Attested Statement of Compliance is to be submitted to ACIF by the Code Signatory no longer than
- (a) four months after the end of the final Test Call being completed; and
 - (b) thirteen months from the date of the last Self Attested Statement of Compliance that demonstrated compliance with the Code.
- 5.3.3 Ongoing annual Self Attested Statements of Compliance must be submitted by Code Signatories to ACIF in accordance with ACIF G514.

5.4 Code Administration and Compliance Scheme

- 5.4.1 Under ACIF Code Signatory arrangements, Code Signatories are subject to ACIF's Code Administration and Compliance Scheme (ACIF G514) (the Scheme). Accordingly, all Code Signatories who are bound by the Code are also bound by the Scheme.

NOTE: If there is a systemic issue (e.g. specific complaint patterns or trends of poor call charging and billing performance), ACIF G514 allows for ACIF to notify a Code Signatory of the systemic issue and specify a reasonable timeframe for rectification of the issue.

5.5 Powers of the Telecommunications Industry Ombudsman to handle complaints under the Code

The Code does not confer powers or functions on the Telecommunications Industry Ombudsman under section 114 of the *Telecommunications Act 1997*.

5.6 Power to handle Industry Complaints under the Code

- 5.6.1 Complaints may be made under the Code to ACIF by a member of the industry (or a voluntary or non-profit consumer organisation

or similar body) (a "Complaint") about a contravention of the Code by a Code Signatory.

- 5.6.2 Complaints by a member of the industry (or a voluntary or non-profit consumer organisation or similar body) about a contravention of the Code by a Code Signatory may be referred from ACMA under the power granted to ACMA in section 514 of the Act, subject to ACIF's agreement to accept the referral. Without limiting the grounds on which ACIF may withhold its agreement to accept a referral, ACIF may withhold its agreement where it considers that the complaint can be more conveniently dealt with in another forum or that handling the complaint may impose an unreasonable cost burden on ACIF.
- 5.6.3 ACIF must handle Complaints under Clause 5.6.1 or 5.6.2 of the Code in accordance with the provisions of ACIF G514.

6 REFERENCES

Publication	Title
Legislation	
	<i>ACMA (Consequential and Transitional Provisions) Act 2005</i>
	<i>Telecommunications Act 1991</i>
	<i>Telecommunications Act 1997</i>
	<i>Telecommunications (Consumer Protection and Service Standards) Act 1999</i>
	<i>Telecommunications (Transitional Provisions and Consequential Amendments) Act 1997</i>
	<i>Telecommunications (Consumer Protection and Service Standards) Act 1999</i>
ITU-T Recommendation	
	<i>Y.1001 (11/00) IP Framework - A framework for convergence of telecommunications network and IP network technologies</i>
Other Publications	
	<i>AUSTEL Technical Standard TS 029-1996, Call Charging and Billing</i>
ACIF Publications	
	<i>ACIF C518:1998 Call Charging and Billing Accuracy Code</i>
	<i>ACIF C518:2000 Call Charging and Billing Accuracy Code</i>
	<i>ACIF G514:2003 Code Administration and Compliance Scheme</i>

PARTICIPANTS

The Working Committee responsible for the revisions made to the Code consisted of the following organisations and their representatives:

Organisation	Membership	Representative
ACMA	Participating	Chris Wong
ACMA	Participating	Sarah Cooper
ACMA	Participating	Rob Pruysers
ACMA	Participating	Peter Cunningham
Consumers' Telecommunications Network	Voting	Sarah Wilson
Hutchison	Voting	Julian Corlet
SingTel Optus	Participating	Sam Mangar
SingTel Optus	Voting	Narindar Singh
Telstra	Voting	Michael Willett
Verizon	Voting	Mary-Jane Salier
Vodafone Australia	Voting	Jason Preston

James Duck of ACIF provided project management support.

The policy objective of the greatest practicable use of industry self-regulation without imposing undue financial and administrative burdens on industry is central to the regulatory scheme of the *Telecommunications Act 1997*.

ACIF was established to implement the policy of industry self-regulation. It is a company limited by guarantee and is a not-for-profit membership-based organisation. Its membership comprises carriers/carriage service providers, business and residential consumer groups, industry associations and individual companies.

ACIF's mission is to develop collaborative industry outcomes that foster the effective and safe operation of competitive networks, the provision of innovative services and the protection of consumer interests. In the development of Industry Codes and Technical Standards as part of its mission, ACIF's processes are based upon its principles of openness, transparency, consensus, representation and consultation. Procedures have been designed to ensure that all sectors of Australian society are reasonably able to influence the development of Standards and Codes. Representative participation in the work of developing a Code or Standard is encouraged from relevant and interested parties. All draft Codes and Standards are also released for public comment prior to publication to ensure outputs reflect the needs and concerns of all stakeholders.



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Care should be taken to ensure that material used is from the current version of the Standard or Industry Code and that it is updated whenever the Standard or Code is amended or revised. The number and date of the Standard or Code should therefore be clearly identified. If in doubt please contact ACIF.