Asia-Pacific
Economic Cooperation

TEL 01/2004T:

A Comparison of the Equivalence of

Selected Telecommunications Standards

APEC Telecommunications & Information Working Group

November 2005

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The Asia Pacific Economic Cooperation (APEC) is an association of regional economies established in 1989 to promote trade liberalisation and economic cooperation. APEC covers a range of economic sectors through eleven different working groups, one being the Telecommunications and Information Working Group (TEL). The TEL has made significant contributions to the reduction of structural and regulatory barriers to free trade in the telecommunications services, equipment and investment. It recognises telecommunications reform will be achieved through sharing experiences and working with the business sector, policy makers and newly-formed regulatory authorities and developing cooperative 'best practice' approaches. The current list of APEC economies are Australia, Brunei Darussalam, Canada, Chile, People's Republic of China, Hong Kong China, Indonesia, Japan, Republic of Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, Philippines, Russia, Singapore, Chinese Taipei, Thailand, USA and Viet Nam.

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1 Project Overview

Project Number:	TEL 01/2004T
Title:	A Comparison of the Equivalence of Selected Telecommunications Standards
Project Type:	TILF
Project Overseer:	Ms. Caroline Greenway Regional Cooperation Section - International Branch Department of Communications, Information Technology and the Arts GPO Box 2154 Canberra ACT 2601. AUSTRALIA Email: Caroline.Greenway@dcita.gov.au Telephone: +61 2 6271 1711
Project Duration:	April 2004 to December, 2005.
Project Manager:	Mr. Theodore Polites, Chief Executive Officer, The Colony Park Group – Australia, Canada, Singapore
Project Budget:	$US 149,700 In addition, the Department of Communications, Information Technology and the Arts, Australia, is providing funding for the provision of a joint APEC TEL-APT Workshop on Standards Equivalence.

PLEASE NOTE:

Key Points of Interest and Outcomes are formatted as per this example paragraph.

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2 Executive Summary

The Colony Park Group and its Associates, Partners, Advisors and Stakeholders (henceforth referred to as the Project Team) are please to provide APEC with our final report for the project "*A comparison of the equivalence of selected telecommunications standards*".

2.1 Definition

Standards Equivalence, as it was defined in the project proposal is:

> Where the key factors of a standard in one economy meet the key factors of a standard in other economies.

In addition to this, economies whose technical regulations are more onerous and hence could be considered as equivalent to those of another economy were also to be considered as a case of equivalence.

The basis for the development of this definition was the **WTO Technical Barriers to Trade Agreement 1995**, Article 2.7, where it states that

> "*Members shall give positive consideration to accepting as equivalent technical regulations of other Members even if these regulations differ from their own, provided they are satisfied that these regulations adequately fulfil the objectives of their own regulations*".

2.2 Key Findings

The primary finding is that equivalence amongst economies standards and technical regulations was most commonly found amongst new technologies.

These technologies had their regulatory development in the economies based upon international standards to allow for their speedier uptake by consumers and hence had fewer variations from one economy to another. Not that GSM telephony was used as a product for review, but as an illustration it is one of the prime examples where Standards Equivalence works across almost all economies.

International Standards are regularly referred to in economy standards for new technologies but are not typically taken directly by reference. Hence, each economy tends to alter or flavour the standards and have these standards applied in a manner that calls for additional testing or reporting. Standards Equivalence would alleviate the issue and assist in reducing the duplicate or additional testing and reporting required to meet these variations and can thus be clearly beneficial to trade.

Products that include standards made to deal with the *Public Switched Telephone Network (PSTN)* or *Plain Old Telephone Service (POTS)* are difficult to equate on a pure clause-by-clause analysis. Agreement can be reached if Regulators can accept the historical safety and network compatibility of products that have met the standards o both the importing and exporting economies.

These 'legacy' standards were primarily created by the then incumbent monopoly providers who were typically government-run organisations.

Many products that are available to economies and meet their standards are only built to one build specification by manufacturers. Perhaps this is an opportunity for regulators to review their involvement in this process from a 'new millennium' perceptive. If regulators in economies focus on a set of key objectives and not limit themselves to a clause-by-clause analysis, some standards and the products they effect may be considered equivalent in the future and much work and negotiation would be saved in undertaking to bring these requirements into line.

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The easiest areas where equivalence can be achieved for legacy system standards are those covering Electro-Magnetic Interference (EMC & EMI) and, to a great extent, Electrical requirements. There appear to be groupings that would achieve the goal of eliminating redundant or duplicate testing for a vast rang of products and bring bout significant cost savings to industry and consumers alike.

2.3 Recommendations

A clause by clause analysis of the technical regulations, particularly those for legacy POST or PSTN product regulations, does not yield a valuable or viable solution to the outcome that an MRA on Standards Equivalence could provide.

This is due to the need for direct bilateral discussions on each technical regulation being required to maintain the sovereignty of each economy and the need for a wider view of the implication of these regulations and their objectives to be taken into account.

An MRA on Standards Equivalence or Technical Regulations should focus on

- facilitating the bilateral negotiations by providing a framework to support economies attempting to seek equivalence in their technical regulations
- documenting the technical regulations covered and aiding other economies to view their technical regulations on the regional landscape
- the support of good regulatory practices for the development of mandatory telecommunications technical regulations in the future, and hence facilitating an easier path to equivalence
- the methods of economies communicating changes in technical regulations where they effect others that have recognised them as equivalent under the MRA
- developing clear and agreed upon methods for handling sunrise and sunset periods for technical regulations in economies
- providing a clear and accessible method for regionally disseminating the information of agreed equivalent standards to the manufacturing and testing industry in a timely manner
- providing similar tools to manage the intercommunication of issues, problems and change management as per the current MRA
- the establishment of a Joint Committee to assist economies in finding the balance required to achieve equivalence through technical assistance and support by other regulators, accreditation bodies and testing laboratories.

It is our principal recommendation that to make an MRA on mandatory technical regulations work, **a set of regulatory objectives needs to be decided upon.** In this way, all economies could focus on the clauses and requirements that meet these objectives when reviewing mandatory technical regulations for equivalence, look beyond the minutiae of the technicalities and focus on the broader outcomes.

We would suggest that these regulatory objectives would include:

- Protecting the safety of persons working on or using telecommunications networks
- Ensuring the interoperability of the customer service equipment for the purpose of supply of the Public Switched Telephone Network (PSTN) or Plain Old Telephone Service (POTS)
- Protecting the integrity of telecommunications networks and spectrum

Another inclusion that we consider relevant and important where products relate directly to voice communication products is:

- Ensuring access to an emergency call service

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2.4 Potential outcomes

The project Request for Proposal noted that:

> "*Standards Equivalence reduces the costs of testing telecommunications products. The streamlining will come about as a single test will be able to be used for a number of economies instead of the current one test per economy per standard-type that has been required.*
>
> *Although not all economies will have equivalent standards, it may be that only 5 tests need to be performed that would cover the 21 economy's regulatory requirements per standard type."*

In what is projected to be a US $60 billion industry by 2010 in APEC (Media Release - 'APEC Helps Reduce Export Costs for Manufacturers' - September 21, 2001), the potential cost savings are enormous if this were to occur. Using the figure of 5 tests to cover 21 economies regulations, and assuming 5 tests to technical regulations per product per economy, the following would be the outcome:

> Current Situation = **21** economies technical regulations X **5** tests per product = **105**
>
> Future State Example = **5** equivalent technical regulations X **5** tests per product = **25**

In the above example, **a reduction of 80 tests would ensue**. With testing costs being anywhere between USD 1,000 and USD 10,000 per test, the above could yield a saving of between USD 80,000 and USD 800,000 per product in testing costs alone for products where the majority of them typically cost between $50 and $1000 per unit and have a lifecycle measured in weeks and months; not years.

Standards Equivalence goes a long way to supporting the APEC Leader's and Ministers Los Cabos initiative for:

> "*A Trade Facilitation Action Plan which aims to meet the trade facilitation objective of reducing transaction costs by five percent across the APEC region over the next five years. The aim is to reduce costs to business, and provide greater choice to consumers*".

Recognising this, and the benefits presented to them from the APEC TEL discussions on - and development of - this project, the Telecommunication Ministers of APEC at the 2005 TEL Ministerial meeting in Lima Peru directed the TEL to:

> "***commence development of a new MRA on the technical requirements of telecommunications equipment***".

This step can change the regulatory environment amongst the APEC economies forever. Should the MRA on technical requirements be agreed upon – even with a short list of simple-to-equate 'new technology' products to begin with and the easier components for legacy systems such as EMC and perhaps electrical – it sets a precedent for other APEC fora and similar efforts by other international organisations that have followed APEC's lead in the past.

The Organisation of American States (OAS) Inter-American Telecommunications Commission (CITEL) and the Asia Pacific Telecommunity (APT) have followed APEC TELs lead by working on and developing MRAs with almost identical wording and requirements as the current APEC TEL MRA.

In fact, the APT held a joint workshop funded as part of this project but completely under the guidance of the Australian Department of Communications, Information Technology and the Arts (DCITA).

Due to its success and the level of interest amongst APT attendees, the APT funded a project titled "*Standards Equivalence: An Economic Impact Statement for the Asia Pacific Region*" (A Report for APT - August 2005 - Windsor Place Consulting).

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In this document, the executive summary states:

"*The economic and regulatory impact of Standards Equivalence will vary across different types of economies. Our economic model indicates that in aggregate,* ***all economies across the Asia Pacific region must be net winners from Standards Equivalence****: the key question is the relative size of the gains in various countries and is dependent on a range of factors such as the relative size of the sector, elasticities of demand and supply for equipment and the scale of potential savings.*

The model provides an indicative and quantitative assessment of the likely impact of introducing Standards Equivalence. For a country that is a net importer of telecommunications equipment, ***there is a total net benefit in aggregate relative to GDP of 0.21 percent****, which means that for every USD10 billion of economic activity, there would be a benefit from Standards Equivalence of USD21 million. More detailed analysis of the precise nature of the costs and benefits of Standards Equivalence is provided at Appendix C to this Report. On this basis,* ***there is a clear economic case supporting the regional adoption of a comprehensive Standards Equivalence framework***."

An MRA on Standards Equivalence or technical regulations, driven by objectives and based on the philosophy of communication and mutual support established by the first MRA on Telecommunications Products, will yield a successful outcome.

By focusing on supporting economies in finding equivalence of their technical regulations, communicating between the economies and to the industry participants who could benefit from this information, and establishing clear rules for the change management of the technical regulations agreed upon by the economies, a successful outcome can be achieved from a technical, regulatory and trade perspective.

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3 Background and Summary

3.1 Principal Aim and Benefits

The principal aim of the project was to provide examples of a regulatory requirements analysis for a range of telecommunications products to support and distinguish what may be achieved should the APEC Telecommunications and Information Working Group (APEC TEL) select to move forward on the establishment of a *Mutual Recognition Arrangement on Technical Requirements of Telecommunications Equipment* (**APEC MRA TR**)*.*

The benefits that supported the desire to develop an APEC MRA TR, as voiced by economies and official guest groups at the APEC TEL were:

- That it would provide manufacturers and exporters of telecommunications equipment **major reductions in time-to-market and expense** in meeting the regulatory requirements of an importing economy by reducing or eliminating costly activities including:
  - economy-specific or duplicate testing of products in the importing economy to similar requirements of the exporting economy,
  - maintaining staff or agents to acquire and maintain technical regulatory requirements data for each economy,
  - maintaining staff or agents to act as government affairs representatives to initiate or negotiate with capitals on changes to technical regulatory requirements.
- That for Conformity Assessment Bodies recognized by importing economies under the current TEL MRA it would provide an increase in capability and business opportunity.
- That local consumers would benefit through earlier access and decreased pricing:
  - for locally produced products through greater competition
  - for imported products through reductions in costs to manufacturers.
- That consumers would not be disadvantaged should manufacturers decline to import products to an economy due to:
  - the costs of meeting testing or regulatory requirements,
  - the time required to perform this testing or obtain approvals where the products had a very short lifecycle.

3.2 Key Factors

The key factors that this project undertook to bring together into the datum were:

- ***The philosophy of the standard*** *– The philosophy of the standard relates to the outcome that is being sought by the standards. For example, some standards are set to meet the regulatory environment; others are aimed at ensuring the product is fit for purpose. It is important that the standards have similar objectives.*
- ***A lexicon of terms*** *– to ensure that the standards are similar, a lexicon of the terms used across the economy's standards will be compiled so that different economy's standards may be compared correctly. This is critical in defining what is being measured.*

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- ***Acceptance criteria or limits*** *– a comparison of the acceptable limits when testing to a standard. This is a key indicator. The acceptances of criteria or limits are to be parameter based. Each standard is to be analysed in terms of sets of parameters. For example, if economy A specifies that a test must return results under a specific level (10) and economy B's specify a similar but different level (9) then – all other aspects being equal – Economy B's tests could be acceptable to economy A (9<10) yet economy A's results may not be acceptable to economy B (10>9). A secondary portion of this should be an analysis of any measurement uncertainty that is allowable within a standard.*
- ***Testing methodology*** *– A number of issues arise here. One is if any prescribed method of testing is defined within the standard. Another is if any specific equipment is prescribed to perform the tests. Yet another is if a testing sequence is prescribed so that the effect of one test creates consequential outcomes in the following tests (as is sometimes the case in electrical safety tests).*
- ***Reporting*** *– A review of the prescribed reportable data and whether all the data required for one economy is included in another economy's reports format. This must also take into account language requirements.*

3.3 Equivalence Vs Harmonisation

Another key purpose for this concept was to alleviate the issues that Standards Harmonisation had caused regulators.

One of those issues, and the most prevalent in discussions, was the loss of the sovereign right to develop standards in any format or language that they wished. True harmonisation would mean the acceptance of another economy's, or an international body's, technical regulation verbatim as their own; an unacceptable option for most economies.

Amongst the APEC economies, issues of language, physical and technical electrical requirements and the like made the ongoing discussion of harmonisation fall to the wayside and the concept of Standards Equivalence come to the fore.

> Standards Equivalence allows each economy to maintain its technical regulatory or standards-making process in any manner it sees fit. It allows these technical regulations to be defined in any language - in any format - that they desire. Their sovereign rights remain intact.

What it is seeking to do is allow each regulator to make a decision – if they feel justified to do so – that another economy's mandatory technical regulations meet their economies requirements.

3.4 Ministerial Support

As it turns out, the Lima Declaration made at the Sixth APEC Ministerial Meeting on the Telecommunications and Information Industry (TELMIN6 - 1-3 June, 2005 Lima, Peru) stated that the Ministers were "*supporting economies' work to develop a new MRA on technical requirements for telecommunications equipment, and encouraging the TEL to place a high priority on its development while duly respecting the commitments already made by APEC economies with respect to the MRA*".

> In the Program of Action for the APEC Telecommunications and Information Working Group attached as Annex A to the Lima Declaration, directed the TEL to "***commence development of a new MRA on the technical requirements of telecommunications equipment***".

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This has been a direct outcome of the work that has been done in the lead up to, and during, this project and we are sure that the data provided in the MRA Management System-Standards Equivalence information system **(MRAMS-SEQ)** which can be found at **http://www.mrams.net** - and the lessons and issues that have come from this undertaking – will provide a platform for discussion for the ongoing efforts to produce a successful and workable MRA on Technical Requirements.

> Effectively, this project has helped to achieve its stated long-term goal *prior* to its finalisation.

It is expected that by adopting a regional framework of Standards Equivalence for telecommunications equipment, with the addition of all mandatory technical regulatory requirements as put forward by the APEC TEL MRA Task Force, all economies will benefit from a reduction in costs, greater consumer choice, the creation of more competitive markets and earlier access to new and emerging technologies.

3.5 MRA Management System Standards Equivalence Information System

The APEC MRA Management System - Standards Equivalence information system (MRAMS–SEQ) is a database application which makes it possible to compare the requirements for products in a number of economies in a convenient and efficient way. Built on the long-standing MRA Management System platform of tools and design, the application generates a number of reports based on selected products that enable the user to view:

- A summary comparison of requirements for products between economies that provided the project with data,
- The details of each comparison presented in a summary,
- The documents relevant to a product in each economy,
- The technical requirements identified for a product in each document,
- The references identified for a product in each economy,
- A technical comparison of two economies in detail., and
- A Lexicon of terms as used across economies, along with a standardised term used throughout the MRAMS-SEQ information system.

The use of these reports allows the user to obtain as much detail as required for their purpose.

The application is accessible via a web interface using a standard browser. The recommended browsers are Firefox 1.0 or later or IE 6 or later. The location of the application is www.mrams.net and the User guide is available via a link from that site.

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4 Project Outcomes

4.1 Issues and Recommendations

The nature of APEC - as an organisation that has as one of its strengths the philosophy of voluntary participation - does create a difficulty for projects and programs such as this. As it is up to the economies to decide whether to provide the necessary data to the project contractor, the data that is provided by economies is the only data available.

With all our contacts, the letters sent by the overseers, the contractors, MRA Task Force chair and even the TEL Chair's office, we received a limited response to the call for the provision of technical requirements and standards.

Nonetheless, we have been able to bring together data that has relevance to the discussions on the future MRA. It highlights some issues and recommendations that the MRA Task Force may note when developing a basis for establishing concepts of equivalence.

- A principal issue includes **the responsibility to communicate changes in technical regulatory requirements and documentation** to the new MRA's participating economies and – most importantly - their laboratories **in a timely fashion**.

  Communication with the laboratories is critical as they ensure that the information is current and available to those who will be using the rules and regulations set forth in the MRA most often; manufacturers and exporters/importers of telecommunications technology.

  Perhaps an organisation such as the Asia Pacific Laboratory Accreditation Cooperation (APLAC), with its connection to laboratory accreditation bodies and a principal role in the development of the up-coming MRA-TR, would be an appropriate manager/clearing house for the dissemination of this data. It would still be up to the economies to keep them informed of changes. The MRA Management System could also handle the distribution of this data if it were updated regularly.

- A clearly defined **listing of mandatory technical requirements for each economy** needs to be developed.

  These should be scoped to include equipment - including wire and wireless equipment, and terrestrial and satellite equipment, whether or not connected to a public telecommunications network - subject to network terminal attachment or other telecommunications regulation and include electromagnetic compatibility (EMC) and electrical safety requirements.

- **Prior to starting the development of the new MRA**, at least one 'new technology' product should be selected and all MRA Task Force participants should attempt to find equivalence with each of the other economy's requirements. **This role play will highlight the issues that must be dealt with in the MRA-TR** and provide an opportunity for all economies to voice their support or concerns.

- **Focus on 'new technology' products** in the first instance and reduce the occurrence of national deviations overlayed on the international standards that economies derive their requirements from.

  The new technology products can be considered as "**low hanging fruit**"; they are easy to pick and incorporate in a first wave of equivalent requirements for most economies. Some other examples of "low hanging fruit" may be the EMC requirements as most are based on FCC or CISPR standards with few national deviations added.

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- For requirements dealing with Public Switched Telephone Network (PSTN) connectivity, we **recommend** that **regulators in economies focus on a set of key objectives** and not limit themselves to a clause-by-clause analysis of the requirements. We would suggest that these regulatory objectives include:

  - Protecting the safety of persons working on or using telecommunications networks
  - Ensuring the interoperability of the customer service equipment for the purpose of supply of the Public Switched Telephone Network (PSTN) or Plain Old Telephone Service (POTS)
  - Protecting the integrity of telecommunications networks and spectrum

  Another inclusion that we consider relevant and important is:

  - Ensuring access to an emergency call service

  These objectives also apply to the 'new technology' products mentioned earlier and are equally valid when negotiating nationally imposed deviations from the base international standards they are derived from.

- It is important not to neglect the existence of examples of Standards Equivalence working in our region. As an example of the above in practice, the Trans-Tasman Mutual Recognition Arrangement between Australia and New Zealand is a good example of how equivalence can work. The arrangement is **based on an appraisal of each economy's technical requirements against a set of defined regulatory objectives.** In the case of EMC, New Zealand has even elected to accept the Australian Compliance Mark (the C-Tick) as their own. The acceptance of a single mark is above and beyond what we would expect regionally, but could be a goal to strive for. The current APEC TEL MRA has set Suppliers Declaration of Conformity (SDoC) at the last Ministerial meeting as the end-game for conformity assessment regulatory reform and, during the negotiations eight years ago, that would have been unheard of.

- **Seek the simple solution – focus on positive outcomes.** Complex requirements and difficult analytical processes will only stifle the benefits of the MRA-TR. Focus on key objectives to be met. Regulators may feel that they are losing control or can't see how legislative requirements and other policy changes can be effected to allow for Standards Equivalence.

  These same issues were raised when the current APEC TEL MRA came into being in June 1998 and – 7 years on - more than three quarters of member economies are participating in Phase I and more are pursuing Phase II certification acceptance as well.

- **Change Management and Communication** are the areas where the new MRA needs to focus. There can be no rules as to what equivalence is or is not. It's all about supporting the process of bilateral negotiations and how information passes from one economy to another, to other economies and to industry.

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4.2 Products

After consultation within the Project group, along with those advising us and with the approval of the overseer, the following products were selected.

The data below provides a listing of the products and the issues these products brought up during our analysis.

4.2.1 ADSL Low pass filter

Consisting of

- Line Filter with
- Connection for Exchange line
- Connection for PSTN device

An ADSL Low pass filter is associated with an ADSL 'lite' Modem. While the ADSL device is relatively new technology and the requirement for the filter correspondingly new, the ADSL filter has, in a number of Economies, inherited historic requirements that increase the difference between these Economies.

> There is a wide range of different requirements and limits across the economies that make a comparison above the individual measurement parameter not possible.

4.2.2 ADSL Modem.

Consisting of:

Desktop modem with the following interfaces

- Line interface including High Pass filter function for direct connection across a PSTN line.
- A low voltage power interface for connection to a "Plug-pack" power supply (SELV connection)
- A LAN connection
- OPTION: Perhaps A USB connection

The majority of Economies base their requirements on the requirement of G.992.2. The result is that the basic ADSL requirements are very similar. The signal power and spectral requirement only vary in Chinese Taipei where the Total Average Power limit is 13dBm compared with 12.5dBm and Canada which has the same Total Average Power difference and some differences in the spectral requirement above the signal band.

While these variations appear minor, they would need to be assessed for impacts on the local networks as the requirements are dependant on the physical network and other equipment deployed on the network in an Economy.

There is relatively little compatibility in the other parameters, and the values specified for most of these other parameters.

It must be pointed out that a number of economies reference the ITU-T Recommendation directly.

In the case of Hong Kong – China, the whole document is specified. This make comparison difficult as the document is not a test specification.

In the case of Australia, Singapore, and New Zealand, the references are more targeted and include interpretation information where required.

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The Australian requirement, by reference, includes line coding apart from the basic electrical requirements.

The requirements for Singapore include many functional requirements as well as the electrical requirements.

It is difficult to assess what the actual requirements for Hong Kong – China are because of the complete reference.

The requirements for New Zealand include a prescriptive requirement for interoperation with specific Telecom NZ equipment.

> The basis for common requirements is present as all the Economies have based the technical requirements on the same or similar source documents. However there are many variations in the peripheral requirements that make and equivalence judgment at this stage not possible.

4.2.3 Cordless Telephone

Consisting of a base station with

- PSTN line interface
- Wireless interface, Spread spectrum (2.4 GHz)
- Low voltage power interface with a “Plug-pack” supply (SELV connection)
- One or more wireless handsets

PSTN Requirements

The requirement of PSTN equipment has a long history in many Economies, and as a result many local requirements have developed. The number of requirements vary considerably.

Even basis parameters such a line level vary considerably both in limits and the way they are specified.

Note that New Zealand has far greater requirements for PSTN Equipment than any other Economy and as a result the requirements have not been full assessed.

The technical requirements for the PSTN part of the Cordless Telephone have a varied basis in the Economies. Some Economies have requirements limited to network protection, namely Canada, the US, but most Economies include requirements related to network interoperability.

> The variations in the requirements are so mixed that it is not possible to make equivalence judgements on the requirements.

4.2.4 Cordless Telephone (2.4GHz SS).

Consisting of a base station with

- PSTN line interface
- Wireless interface, Spread spectrum (2.4 GHz)
- Low voltage power interface with a “Plug-pack” supply (SELV connection)
- One or more wireless handsets

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> The radio part of Cordless Telephone has far more similarities provided they are based on the same basic requirement, FCC or ETSI. Economies that do not accept ETSI requirement may require extra testing to meet the documented requirements however it is unlikely that this equipment will not meet those requirement.

Note that many Economies have a Specific Absorption Rate (**SAR** - measure of the rate of absorption of RF energy in the body) requirement for this type of device. Analysis of SAR requirement has not been done as no information was provided.

4.2.5 PSTN Fax Modem

The Fax/Modem has the same variability of requirement as the other PSTN device. The only parameter for which there is some basis for direct comparison is the maximum, in band power level. This is either -10dBm or -9dBm. With almost complete migration to digital networks and the corresponding significant reduction in level variations across the networks, it would appear that a compromise on this value should be possible.

PSTN Requirements in general
The requirement of PSTN equipment has a long history in many Economies, and as a result many local requirements have developed. The number of requirements varies considerably. Even basic requirements such as voice line level vary considerably mainly in the way they are specified.

> The technical requirements for the PSTN have a varied basis in the Economies. Some Economies have requirement limited to network protection, namely Canada and the US, but most Economies include requirements related to network interoperability.
>
> It would take a great deal of concentrated effort to come to agreement on a set of requirements between two economies where interoperability requirements are specified.

The variations in the requirement are so mixed that is not possible to make equivalence judgements on the requirements.

Note that New Zealand has far greater requirements for PSTN Equipment than any other Economy and as a result the requirements have not been full assessed.

ISDN Basic Rate NT1

Consisting of a NT1 with the following interfaces

- Network Interface ‘U’ reference point with power feed function.
- Customer S/T buss interface with power feed function
- Low voltage power interface for connection to a “plug-pack”

The NT1 was selected as an example of a business application device for comparison. Of the Economies where information was provided, two do not allow customer provided equipment. The Canadian requirements relate only to network protection. The Requirements for Hong Kong - China are largely based on a reference to ANSI T1.601 a copy of which was not available.
The requirements for Singapore are largely based on G.961.

The only useful technical comparisons that could be made were very limited between the Canadian CS-03, Part VI and G.9612 for Singapore.

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The total requirements for Singapore and Hong Kong - China also include line signal characteristics. T1.601 and G.961 are very similar but as a copy of T1.601 which was not available.

Note that Chinese Taipei provided information on the power feed requirement but no referenced documents.

> The results of comparisons of technical requirements vary considerable between the products. Products that are based on relatively new technologies, tend to have more similar technical requirements whereas those based on older technologies tend to have a large amount of historic, Economy based, requirements.
>
> These vary not only in content and scope of the requirements, but also the way the requirements are specified.

4.3 Specific Product Comments

4.3.1 Spread Spectrum Wireless LAN

The Reality for spread spectrum devices is that the majority are designed to FCC or ETSI requirements and supplied to as wide a market as possible. The variations in product are often related to labelling only.

When a product is imported into many Economies, any variations in the requirements from the FCC or ETSI are assessed based on the FCC or ETSI conformity assessment reports available. There are some requirements that will not be in those reports which require a supplementary assessment. Some of the assessments may require calculation of specific values from these reports.

4.3.1.1 FCC based Wireless LAN

The FCC based wireless LAN requirements are very similar. The variations fall into the following categories:

- Variations on output power/EIRP/antenna requirements,
- Reference to different versions,
- Added requirements, (Conducted emissions, Controls, Connections)

Output Power, EIRP and Antenna Gain

These three Parameters interact; a variation to one will impact on the others.

The FCC document specifies an output power, and antenna gain limit. As we are considering a wireless LAN product, it is a point to multipoint device and allowance of over 6dB gain for point to point devices does not apply.

In the case of output power and antenna gain, the only economy to remove these requirements is Australia, and no other Economies directly vary the limits.
The more significant change is the specification of an EIRP limit.

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The following Economies specify an Equivalent Isotropically Radiated Power (**EIRP**) limit:

- Australia specifies an EIRP limit of 4W and removed the Output Power and Antenna Gain limits
- Hong Kong – China specifies two EIRP limits depending on data bit rate. 0.2W EIRP for data bit rates leas than 11Mbps and 4W for higher Data rates.
- New Zealand limits EIRP to 4W.
- Singapore limits EIRP to 0.2W.

The FCC output power and antenna gain limits the EIRP to 4W, but this is only possible with maximum power and antenna gain. When either is varied, the EIRP limit can only reduce if the requirements are to be complied with.

The 4W EIRP limits for New Zealand and Hong Kong – China for higher data rates have little impact as they also specify the output power and antenna gain limits as does the FCC.

The requirements for Hong Kong – China for lower data rates and Singapore are restrictions on the original FCC requirement.

The Australian 4W EIRP requirement without antenna and output power limits is a relaxation of the FCC restrictions, as it allows the output power and antenna gain to be varied outside the FCC limits to produce the same EIRP.

Canada appears to have removed the Antenna gain limit but this would need to be verified as without this, or an EIRP limit, the peak radiated power is not limited.

It can therefore be said that:

- Australia has a more liberal requirement on these parameters as it only specified the EIRP.
- Singapore and Hong Kong – China for lower data rate devices have a more restrictive requirement.
- The other Economies have effectively the same requirements.
- Canada needs verifying, but possible has an identical requirement to the FCC.

Reference to different versions.

A number of Economies specify a particular version of the FCC requirements. The only Economy where this is significant is Australia as it specified the 65 FR 57561, Sept. 25, 2000 version, which included a processing gain requirement. This is a unique requirement to Australia.

Added requirements:

Conducted emissions
Chinese Taipei uniquely specifies a Conducted Emission requirement. The only similar requirement in other economies is that specified in EMC regulations.

Controls
Singapore specifies that readily accessible controls are not available to adjust the product to operate outside the specifications. This is normally an implied requirement in other Economies.

Connections
A number of economies - Canada, Hong Kong – China, Singapore - have a requirement for the antenna connector. It is to prevent the use of a higher gain antenna other than that supplied by the manufacturer. Other economies rely on user information for this function.

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4.3.1.2 ETSI Requirements

The differences between the Economy requirements, with the exception of EIRP limits in Singapore and Hong Kong – China for lower bit rate device, are relatively minor.
As stated the reality is that many Economies already rely on the reports for the FCC in verifying of compliance.

FCC based Wireless LAN

The FCC based wireless LAN requirements are very similar to the ETSI ones. The variations also fall into the following categories:

- Variations on EIRP,
- Reference to different versions,
- Added requirements, (Conducted emissions, Controls, Connections)

EIRP

The ETSI standard EN 300 328 limits radiated output by specifying a field strength. It also limits the maximum spectral energy.

A number of Economies vary the EIRP limit from 0.1 W to 4 W (Australia, Chinese Taipei, Hong Kong – China, New Zealand) and Singapore varies it to 0.2 W. The 4W requirement is similar to the FCC requirement, but in reality would be more liberal as the maximum EIRP under the FCC requirements is only possible at the combination of maximum power and antenna gain.

The reality is that the relaxation in the ETSI EIRP limit has little effect on a wireless LAN product. The bandwidth of a Wireless LAN signal is around 10MHz. EN 300 328 also limits the maximum radiated Power Spectral Density to 10mW/MHz (-50 dBm/Hz). For a 10 MHz signal, the EIRP is therefore limited to around 0.1 W.

So, for a wireless LAN product, the 4 W limit - or even the 0.2W limit - is not an effective variation on the ETSI standard.

Version Variations.

There are two versions of EN 300 328 referenced, V1.3.1 (2001-12) and V1.6.1 (2004-11). The earlier version includes a statement about user accessible controls which has been discussed elsewhere as being implied in other documents.

There is little difference between the versions in other areas.

Added requirements:

Conducted Emissions
Chinese Taipei uniquely specifies a Conducted Emission requirement. The only similar requirement in other economies is that specified in EMC regulations.

Controls
Singapore specifies that readily accessible controls are not available to adjust the product to operate outside the specifications. This is normally an implied requirement in other Economies.

Connections
A number of economies, Canada, Hong Kong – China, Singapore have requirement for the antenna connector to prevent the use of higher gain antenna than that supplied by the manufacturer. Other economies rely on user information for this function.

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4.3.2 Wireless LAN Requirements

4.3.2.1 Base technical requirements

There are two sets of requirements on which the regulations for Wireless LAN products are based;

- the FCC part 15:247, and
- ETSI EN300 328.

A number of economies (Australia, Hong Kong - China, New Zealand, and Singapore) provide alternatives to allow products tested to either of these base sets of requirements to potentially comply with their regulations.

While this makes it easier for products to comply with the technical requirement in these economies, it does make it more complicated to analyse whether the acceptance by one of these economies can be considered as acceptable to other economies. In the analysis, the alternate sets of requirements in the one economy have been considered separately.

4.3.2.2 Groupings

There are two distinct groupings:

FCC based requirements

Australia (FCC ref.), Canada, Hong Kong (FCC Ref.), New Zealand (FCC Ref.), Singapore (FCC Ref.), Chinese Taipei, United States.

Australia, Hong Kong - China, New Zealand, Singapore, and the United States specify the requirements of FCC 15.247 by reference.

ETSI based requirements

Australia (ETSI ref.), Hong Kong - China (ETSI Ref.), New Zealand (ETSI Ref.), Singapore (ETSI Ref.).

4.3.2.3 FCC based Group

Based on the parameters: EIRP, EIRP Power Spectral Density, Operating Band, Out of Band Emissions and Minimum Bandwidth, the following economies have equivalent requirements:

- Australia, Canada (1), Hong Kong - China (2), New Zealand, Chinese Taipei and Hong Kong - China
- Australia references the version as of 65 FR 57561, Sept. 25, 2000
- Hong Kong - China references the version as of 67 FR 42734, June 25, 2002
- New Zealand have no specific reference, the latest is taken as required.
- The current US version is as of 69 FR 54035, Sept. 7, 2004.

The significant differences are the Processing Gain requirements in the 2000 version.

The economies that do not have common requirements are:

- Hong Kong - China (for data rated less than 11Mbps) and
- Singapore.

Both economies have an EIRP limit of 200 mW

(1) It has been assumed that Canada has a maximum antenna gain of 6 dBi for this analysis, but there is some confusion on this issue.

(2) For products with an aggregate data rate greater than 11Mbps. For products with a data rate below this limit the EIRP is limited to 200 mW.

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4.3.2.4 ETSI based Group

Based on the parameters: EIRP, EIRP Power Spectral Density, Operating Band, Out of Band Emissions and Minimum Bandwidth, the following economies have equivalent requirements:

- Australia,
- Hong Kong - China,
- New Zealand

These economies have modified the ETSI EIRP limit of 100 mW to 4 W.

The only other economy with ETSI based requirements is Singapore, which has modified the EIRP limit to 200 mW.

Note that the modification of the EIRP limit actually has little impact as the Power Spectral Density limit reduces the radiated EIRP to the order of 200 mW for IEEE 802.11 devices. (See Power Spectral Density discussion following)

4.3.2.5 FCC to ETSI comparison.

Based on the parameters: EIRP, EIRP Power Spectral Density, Operating Band, Out of Band Emissions and Minimum Bandwidth.

EIRP

The EIRP limit for a number of economies (FCC based requirements) has been calculated from the maximum output power and the maximum antenna gain (assuming non-point to point applications).

A straight EIRP limit gives more flexibility, allowing the output power and antenna gain to be traded to provide the same EIRP. Where a maximum output power and antenna gain is regulated, there is only one combination that produces the maximum EIRP.

The EIRP limit for the ETSI based requirements has been modified by the regulations in a number of economies, however this is ineffective as described in the Power Spectral Density section following.

The current reality is that the FCC EIRP limit is 16 dB higher than the ETSI limit.

Note - The specification of output power and antenna gain appears to be a prescriptive means of limiting the radiated power, however limiting the output power does limit the scope for devices with a higher output power being used with antennas that produce a radiated power over the limit.

EIRP Power Spectral Density

The FCC specifies the power spectral density as a conducted measurement of 8dBm in 3 kHz band.

ETSI specifies a radiated limit of 10 mW per 1 MHz EIRP. (-50 dBm/Hz)

The FCC requirement can be converted to an EIRP, assuming a 6 dBi antenna, of -20.77 dBm/Hz.

These figures are quite different.

Considering the FCC limit is consistent in that

$$PSD = \frac{Power}{Bandwidth}$$

This is for the Power Spectral Density, Output Power and Minimum Bandwidth limits (assuming a flat transmit spectrum).

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The ETSI limit for the same consistency and output of or 4 W EIRP would require a bandwidth of 400 MHz. This is not possible as the band is 83.5 MHz. If the whole band were used, the power limit would be around 800 mW EIRP. Considering an output of 100 mW EIRP, the bandwidth limit would around be 10 MHz. This is consistent with a Wireless LAN signal.

It is apparent that if some economies wished to raise the maximum EIRP limit to match the FCC limit for products based on the ETSI document, then the Power Spectral Density limit would also need to be modified.

Measurement differences. The different measurement bandwidth specification gives results that may not be comparable on some signals. The FCC also specifies a symbol averaging measurement which again may lead to different measurements.

Operating Band

The Operating Band is identical.

Out of Band Emissions.

The specification of Out of Band emissions is quite different between the FCC and ETSI. The differences in specification and measurement are so significant as to make a meaningful comparison difficult.

Minimum Bandwidth

The minimum Bandwidth is not specified in ETSI. From the PSD discussion above it can be seen that Minimum Bandwidth, PSD and EIRP are inter-related.

Other parameters

- **Output power (conducted):** See EIRP
- **Antenna Gain:** See EIRP
- **Processing Gain:** The Australian regulation references the version of FCC 15.247 of 65 FR 57561, Sept. 25, 2000. The later versions do not include the processing gain requirement.
- **Controls:** A number of economies specifically have requirements on user accessible controls that could cause the equipment to operate outside the requirements. This requirement may be implied in the requirements of other economies.
    - Note that reference to EN 300 328 V1.31 also results in a controls requirement.
- **Connections:** A number of economies have requirements on the connectors used for detachable antenna. The requirement is to prevent the use of an antenna with a higher gain than that would cause the product to exceed the EIRP limits. For an integrated antenna this is not an issue but, for other equipment, this can be a major production issue.
- **Interference:** Interference issues raised in the requirements are usage issues, which are not related to compliance of the equipment. These requirements have been noted but not considered as relevant for the current project.

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4.4 Documentation

All economies have requirements regarding documentation. In some cases the requirements are contained in the documents studied, and in others they are in the general compliance documents.

4.4.1 Equipment Identification and compliance marking

Equipment identification and compliance marking are issues for all economies. Although not a significant barrier in themselves, the technical regulatory requirements that must be met to apply the compliance marks is often difficult to obtain and many variations on the specific requirements needed can be obtained from different sources.

What a manufacturer designing products believes to be the appropriate set of technical requirements to meet the needs of obtaining a compliance mark is most often drawn from information obtained from:

- A testing house
- Research done by their employees, agents, consultants or distributors in the importing economy
- Research done by the research and development team in the exporting economy
- Data obtained from the importing economy's regulator.

During the course of this project, we asked the regulators providing us with their data to specify exactly what technical regulations were required for each product to meet their requirements.

This often caused some difficulty as there were no specific product-based listings for many of the economies. It was up to us in most cases - like it is for most manufacturers – to research information from people we thought might know, then estimate what we thought was correct.

One thing we hope an MRA-TR might do is assist in clearly defining the mandatory technical regulations required for products or product groupings in each economy. This alone could be as valuable as equating standards to one another.

4.4.2 EMR

EMR has not been studied as these requirements are generally specified in documents external to those provided.

4.4.3 Safety

Safety is a general economy/telecommunication requirement. For the purposes of this project, products using external power packs were specified. These power packs come with their own electrical certifications and hence they have not been included as part of the comparison.

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5 Equating Requirements

Newer technologies are much simpler to equate as they are more often based on recognised international standards.

When regulations were initially created by most economies, they were developed by service providers who were owned by the capitals of each economy and had a monopoly on service provision. They set the standards, tested and approved of products and, because of this, products that include standards made to deal with the *Public Switched Telephone Network (PSTN)* or *Plain Old Telephone Service (POTS)* are almost impossible to equate. Often the standards developed to deal with these products were not deliberate attempts at causing trade barriers; sometimes it appears that they were.

The difficulty with a straight technical comparison of standards and requirements alone is that many standards in many economies relate to products other than those that were selected for comparison. Hence, the mandatory requirements bear no direct relationship to the product in question.

In other cases, there were no specific technical requirements for a particular aspect of a product in one Economy's standard whereas there were requirements in another Economy. So there could be a one-way-flow of products should a direct correlation of standards be the basis of equivalence.

In some cases, applying tolerances to the requirements allows a two-way flow but it comes down to specifying the appropriate tolerances to the appropriate requirements which is a daunting task across twenty-one economies, many hundreds of standards and many thousands of individual clauses.

> Between some economies, it works.

Testing methodologies appear rarely to be specifically described in most of the standards we reviewed. Some regulators defer to testing houses to derive the method of testing to provide the results sought. This leaves a broad scope of discretion to testing houses but should be dealt with within the scope of the current *APEC TEL MRA on the Conformity Assessment of Telecommunications Products*.

In actuality, this project provides a clause by clause review of the most relevant clauses to the product that fitted within a framework. Relevance was deemed where there was a requirement for:

- Protecting the safety of persons working on or using telecommunications networks
- Ensuring the interoperability of the customer service equipment for the purpose of supply of the Public Switched Telephone Network (PSTN) or Plain Old Telephone Service (POTS)
- Protecting the integrity of telecommunications networks

Another inclusion could be:

- Ensuring access to an emergency call service

> By focusing on these aspects of the standards and requirements, it balances the need for a safe-to-use and reliable telecommunications network with the ability to allow new technologies into the market quickly and with a minimum of regulatory impost.

This could be the most significant outcome of this project as it highlights the need for economies to consider a process such as this so as to enable an MRA on Technical Requirements to effectively function between the economies in the region.

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5.1 Analysis process for Requirements Documents which use references.

Technical requirements in regulations are often incorporated by reference to Standards and other technical documents. This is normally an efficient means of specifying technical requirements. It is also a means of developing similarities between technical requirements when international, regional or other common requirements are specified.

The use of common technical requirements often aids equipment suppliers as it minimises variations required in products and, in some cases, minimises testing requirements.

In this project we are studying the equivalence of standards, requirements and technical regulations between the different economies. This involves the comparison of each economy's requirement against the others as opposed to an analysis by a specific product. Such a comparison is a more complicated approach than that required for a manufacturer assessing the requirement for such a product.

The next points take us through some of the issues we encountered.

5.1.1 Multiple (alternate) References

A number of economies include the requirements by reference. In some cases alternatives are given for the reference documents.

As the requirements in the referenced documents can have significant differences, and we are trying to establish equivalence between the requirements of the Economies, a means is required to address the reality of different alternative sets of requirements in some Economies for the same product.

One option is to consider the alternatives as different products. This would require the different products to be closely specified e.g. based on the same Standard the product's development was based upon. The second option is to consider the Economies as having two distinct sets of requirements.

As we are analysing the equivalence between Economies, it is not desirable to restrict the comparison by over-limiting the scope of the products for which the analysis is applicable. The dual requirement for one economy approach has therefore been taken. This has required a different approach and modification to the tools used for the analysis (See analysis approach below).

5.1.2 Variations:

Where a variation to a parameter in a referenced document is specified in a regulation, the comparisons of the outcomes can become less clear. In analysis, the requirements of the **referencing document** are taken to supersede the requirements of the referenced documents.

In cases where a direct substitution of a requirement occurs, a simple priority approach to the requirement is all that is required. Many requirements are however interrelated, and a simple change to one or addition of a new requirement may result in confusion and make the comparison of outcomes far more complicated.

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Complications include:

- Varying a parameter that only partly redefines the requirements outcomes of the referenced document,
- Not excluding conflicting parameters or related parameters when a variation is made.
- Adding a parameter that is related to parameters in a referenced document without addressing the parameters in the referenced document.

During our analysis it has become apparent that over-specification of requirements has possibly occurred as a result of the way references have been varied. In a number of cases it has also become apparent that some of the variations have apparently not had the intended impact because of other requirements not being addressed simultaneously.

> Where these situations have occurred, it has often resulted in an incompatibility between economy's requirements when the requirements are actually aimed at the same products.

Different documents specifying alternate sets of parameters for the same outcome also makes comparisons more complicated. In order to make some comparisons possible, it has been required to harmonize some requirements to common parameters.

The analysis and presentation of the results in a useful way has required extra flexibility and intelligence to be built into the MRAMS-SEq information system.

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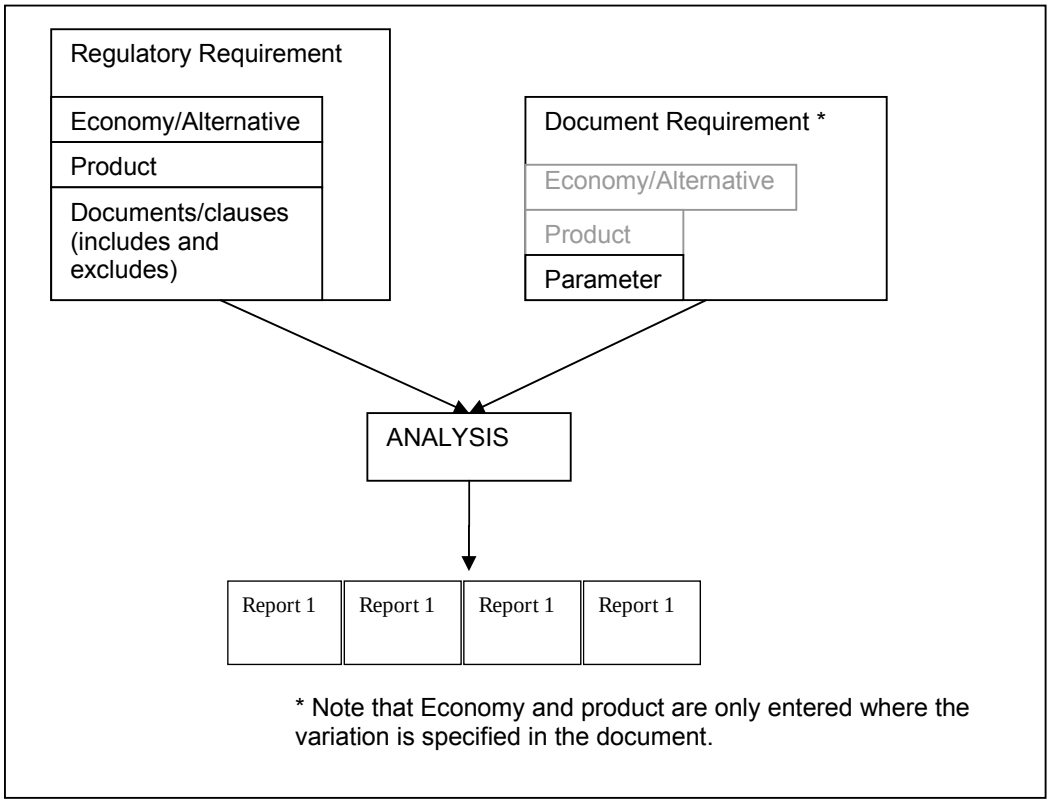
5.2 Analysis Approach

Previously, the approach has been to simply identify all the requirements on an economy/product basis then compare the requirements. The identification of issues in relation to the use of referenced documents has resulted in the analysis of data to be carried out on a basis as shown in the diagram.

The documents are analysed on a stand alone basis for the technical requirements pertaining to the product. The requirements, on a document basis from the regulations, are then analysed. These two are then brought together, in an automated process, to generate the required reports. This process tends to quickly highlight conflicting and redundant requirements and other anomalies.



This approach allows variations to also be handled in an efficient manner by using the inclusion/exclusions information on an economy /product basis.

5.2.1 Analysis Example - Wireless LAN (2.4 GHz)

Wireless LAN products based on IEEE 802.11b and IEEE 802.11g tend to travel internationally and, with their rapid introduction, there has been little scope for economy specific variations, although a few do exist.

The regulatory requirements for these products are largely based on the ETSI Standard EN 300 328 (note some versions are identified as EN 300 328-1) or the FCC regulation 47CFR15.247.

As the FCC and ETSI requirements are quite different and are specified in different ways, it has been necessary to consider these as alternate sets of requirements for each applicable economy.

In most cases, the regulatory documents referencing the base document specify requirement variations as well.

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A basic example is detailed below.

5.2.1.1 Parameters

Document	Transmitter power	antenna gain	EIRP limit
FCC	1W	6dBi	(4W)*
ETSI	-	-	100mW
Var. 1	1W	6dBi	4W
Var 2	-	-	4W

** calculated*

Typical variations from the economy's document are;

- **Variation 1:** Specify an EIRP variation/addition, or
- **Variation 2:** Specify an EIRP variation as a replacement for the EIRP, and power and antenna gain limits.

Take three cases of equipment properties:

Case	TX Power	Ant. Gain	EIRP
1.	1 W	6 dBi (x4)	4W
2.	0.5 W	12 dBi (x8)	4W
3.	2 W	3 dBi (x2)	4W

Case 1 is the maximum limit allowed by the FCC, without reducing the power output directly proportional to the antenna gain. This limits the EIRP to 4W.

Case 2 is also allowed by the FCC and is the maximum radiated power allowed (non-point to point) for the high gain antenna.

Case 3 exceeds the FCC power limit but complies with the requirements under Var 2.
If am economy specifies the EIRP limit without excluding the other limits then all limits apply and there are limited combinations that yield the maximum EIRP. As the output power reduces, the maximum EIRP will also reduce.

When the EIRP limit is substituted for the other limits, then Case 3 will comply with the requirements but not the FCC requirement.

> **Note:** It is assumed that the Point–to–Point variations do not apply to the product types being considered.

The analysis of this case shows that while it is often possible to compare sets of requirements by using or deriving a common parameter, the means of specifying or varying the requirements may make the comparison more complicated.

Another example is of a simple change to the EIRP limit resulting in outcomes that do not appear intended. Where a 4 W EIRP limit is used for EN 300 328, it would result in a minimum signal bandwidth of 400 MHz (many times the width of the whole band) in order to comply with the Power Spectral Density Limit.

The ETSI Power Spectral Density Limit is not varied by any economy's requirements and results in a maximum EIRP for Wireless LAN devices of around the 100 mW level when based on ETSI requirements.

The Power Spectral Density Limit for the FCC is 30 dB higher, allowing the higher power levels.

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5.3 MRAMS-SEQ Information System Operational Philosophy

The prime objective is to be able to compare the mandatory requirements for the supply and use of products of many economies in a way that is useful in the development of an overview to support (or not support) the development of an APEC MRA-TR.

In order to reach this objective, it is necessary to objectively quantify the requirements and the products.

The Economy Product Matrix Report is a comparison of the parameters specified by the selected economy against all the other economies that have been analysed for the selected product. It is this screen that provides the principal information required for use in negotiations between economies in relation to equivalence of technical regulations. The primary Legend coding is as follows:

- (Green) The requirements are compatible. No additional analysis is required to allow these technical regulations to be considered equivalent.
- (Orange) There are requirements in one Economy that do not exist in the other Economy. This is a case where equivalence yields a one-way-flow of products. With negotiation on the requirements, some of these one-way flows could be “Green Boxed”. Specifically when using the *Import To* or *Export From* selections from the Requirements selection box, the Orange box signifies that the Selected Economy has requirements that the column economy does not.
- (Red) The requirements are incompatible. This is where clicking on the box will provide the detail of the clauses in question and the differences that exist. Negotiation is assisted by clearly identifying the issue at hand.

By using this report specifically – and the system in total - the underlying detailed data that is required for the discussions on the MRA-TR can clearly be seen.

> This report can be used as a model of a paper-based analysis that might be undertaken in the future between economies when participation in the MRA-TR begins. It can also be used to role-play a negotiation within the MRA Task Force to highlight the issues and requirements that the MRA-TR drafting group must allow for.

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5.3.1 Data Format - Documents

The data used in the MRAMS-SEq Db is derived from the original documents specified by regulators for the initial product list. All requirements are stored in relation to the source document for traceability.

All documents are identified by designation, name, and revision or amendment. The organisation responsible for the document is also recorded. To enable tracing of requirements, document clauses are identified.

The actual document information is formatted in a hierarchically format.

Document	Revision	Clause
Document 1	Revision 1	Clause
		Clause 2
		....
	Revision 2	Clause 1
		Clause 2
		...
	...	
...		

The database can contain notes and clause text from the document to aid in the analysis.

5.3.2 Requirements

The analysis of requirements has been done in the most objective way possible, strictly using the documents specified. For each clause of a document, all the requirements are identified and where possible broken down into a set of quantitative values, formula or descriptions. The analysis of a technical requirement takes the format:

- Identify the Parameter being evaluated,
- Identify all measurement conditions,
- Quantify all results and measurement conditions by value, units and limit(1)

Where this is possible, the analysis is added to the database and referenced to the clause containing the requirement. By limit we mean that the value is a maximum, minimum, nominal, tolerance, etc.

To make comparisons more consistent, the combination of a measurement, unit and limit is called a Variable and these are defined in the database. To make the comparisons more flexible, each Unit contains a conversion factor, which allows a value to be converted to base units, so Variables specified in different units may be compared.

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The specification of a quantative Parameter is therefore entered as

Parameter	Variable A(units, limit)	Value A	Note A
	Variable B(units, limit)	Value B	Note B
	Variable C(units, limit)	Value C	Note C
	...	...	...

where Value A is the measurement normally associated with the parameter and the other Variable is the measurement condition.

In some cases, Variables are in sets, for example when a Parameter is defined by a graph. In these cases the sets of Variables are identified as “1 Variable”, “2 Variable”, etc.

In cases where the variable is defined by an equation, the equation is placed in the Notes fields, and the value left empty.

Where the requirement is a text specification this is also placed in the Notes field.

Some documents specify requirements by reference to a second document. The reference may be to a non-specific version of a document, a specific revision of a document or a specific clause. References are identified by the Parameter “Reference”, and the variables, “Standard”, Revision”, or “Clause” to cover the possible reference types. This enables the comparison of requirements by reference, which for some types of product, is the most efficient means.

While in some cases only the information applicable to the specific products has been entered from a document, in other cases, virtually all the requirements contained in the document have been entered. As will be seen later, if all the requirements are fully identified, the addition of more products becomes an efficient exercise.

5.3.3 Products

The products selected for analysis were:

- Cordless Telephone
- Cordless Telephone (2.4GHz)
- ADSL Modem (G.992.2)
- ADSL (low pass) Line Filter
- ISDN Basic Rate NT1
- PSTN Fax/Modem
- Wireless LAN (2.4GHz DS or DM)

Products have been placed in broad Classes, each Class intended to cover all the products that will be covered by a particular document or set of documents. Currently we have the Classes PSTN, DSL and Spread Spectrum. Each Class has been defined by a set of functions or attributes. The combination of Classes and attributes, allows Products to be specified.

The specification of products by Class and attributes or functions is to allow the addition or modification of Products with a minimal amount of additional analysis.

5.3.4 Product Classes, functions or attributes

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A Product Class is a broad class under which a set of functions and attributes for Products can be identified. Product Classes are used to specify Products, and to identify the application of requirements. The specification of a Product is a list of the functions or attributes the Product possesses.

5.3.5 Applying Product Classes to Requirement Applicability

To define the applicability of a requirement to Products, we need a mechanism that can both include and exclude Products. The mechanism is the Boolean expression

(a | b | c | ...) & (p & q & r & ...)

When specifying the applicability of a requirement, the functions or attributes can be put into one of two groups.

- In the first group, the requirement applies if any of the identified functions or attributes are possessed by the products
- In the second group, the requirement applies only if all in identified functions or attributes are possessed by the product.

The requirement will apply, if

- No attributes are identified in either group (this is the Apply All condition),
- the Product possesses any attribute in the first group (ANY) and there are no attributes in the second group (Apply All),
- There are no attributes in the first group (Apply All) and the product possess ALL the attributes in the second group,
- The Product possesses any attribute in the first group (ANY) and ALL the attributes in the second group.

By the use of this combination, it is possible to define a requirement such as “applies to products that operate in frequency bands A and B but not C and use modulation type M but not N” by the following selections.

Any		AND ALL	
✓	Band A		Band A
✓	Band B		Band B
	Band C		Band C
	Modulation M	✓	Modulation M
	Modulation N		Modulation N

The requirement therefore does not apply if the product only uses modulation N or any other modulation but not modulation M, or only operates in Band C, or any other band but not Bands A or B.

This accounts for virtually all possible cases where the applicability of a requirement needs to be identified.

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Where necessary, it is possible to exclude a requirement, down to the variable level, from a Product for a specific Economy. This is normally in special cases, for example where an Economy references an international or regional document, but varies one parameter in the referenced document.

The applicability of a requirement is normally identified or implied in the document where it is specified. The applicability information is therefore stored with the requirement and linked to the Document Clause.

5.3.6 Applicability by Economy and Product

Requirements may also be limited to an Economy or to a Product. These facilities are only intended to be used is limited circumstances. The Economy restriction is intended for requirements that are an Economy deviation in an international document. The Product restriction has mostly been superseded by the more flexible Product Class applicability described above.

5.3.7 Economy Documents

Regulators specify requirements for products by reference to Documents. We enter these details and they appear on the Economy Documents Report. The requirement can be entered as a Revision, which implies the whole document, or Revision and clause. There is also a facility to exclude a clause, or even a single requirement, for situations where a regulation references a document, but excluded a part or varies a parameter.

The Economy Document data includes a start Date and End date.

5.3.8 Economy Parameters and MRAMS-SEq Db Parameters

5.3.8.1 Reports: Putting them all together

All the information described so far can be collected and entered with a relatively narrow focus, taking care with the detail and ignoring the overall result. To bring all this data to a useful format is essential to meet the goals. The tools to do this are the MRAMS-SEQ information system Reports.

The complexity of the task varies from a simple report of the entered data as in the Economy Documents Report, to complete database searches required to assemble the Matrix Reports. This section is a description of the logic and methods used in generating these reports

The details of requirements are entered into the database in relation to the document containing them. To reach our final objective, the applicable requirements must be mapped to each Product.

5.3.8.2 Economy, Documents and Document Parameter Reports

These are the simplest reports; they display the data as entered in the database.

The data is displayed on an Economy/Product basis for Economy Document Report. Also included in this report is the specification of the product. The Document Parameter Report displays directly, or indirectly, all the requirement details entered for a document. As there is possibly a large amount of information some of the details are presented on a second screen.

5.3.8.3 Economy Product Requirements

This Report is the first where the data is assembled. The requirements from the Document are assembled into a list of requirements for a particular product. The Economy Parameters are also related to the SEQ Parameters. Again, as there is too much information to display, the details of each requirement can be displayed on a separate screen.

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6 Stakeholders Feedback

The project team was frustrated at the response to calls for data to perform this analysis but the most upsetting component of this project has been the lack of any substantial feedback from any of the participating economies. As with the calls for data, multiple verbal requests at meetings and emails from the project team, the overseer and the APEC TEL secretariat were ignored.

Much time and effort was expended in developing a simple and user-friendly forum and feedback mechanism for this project. The system took information directly from the screen from which the posting was made from and automatically updated the forum input page with that data. This was to no avail.

After countless calls for feedback, the only documented feedback we received - outside our own project team's inputs - was an email from the US State Department. This relevant comment in relation to the concept of Standards Equivalence and desires for the outcomes of the project are presented below.

> "In general it appears that a significant amount of data was analyzed and a web site created to compare the data. It appears to indicate that for the six telecommunications standards chosen it would be hard to determine/agree on equivalence…
>
> It would be helpful if the final comments/conclusions would recommend a course of action in regards to how to proceed with the MRA on equivalence."

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7 Key Points

Following are a number of key points found within this document that should be noted. In addition to this, some suggestions and action items the project team feel need to be addressed have been included.

Standards Equivalence Definition:
Where the key factors of a standard in one economy meet the key factors of a standard in other economies

Equivalence Vs Harmonisation:
Standards Equivalence allows each economy to maintain its technical regulatory or standards-making process in any manner it sees fit. It allows these technical regulations to be defined in any language - in any format - that they desire. Their sovereign rights remain intact.

Ministerial Support:
In the Program of Action for the APEC Telecommunications and Information Working Group attached as Annex A to the Lima Declaration, directed the TEL to "***commence development of a new MRA on the technical requirements of telecommunications equipment***".

Effectively, this project has helped to achieve its stated long-term goal *prior* to its finalisation.

ADSL Low pass filter:
There is a wide range of different requirements and limits across the economies that make a comparison above the individual measurement parameter not possible

ADSL Modem:
The basis for common requirements is present as all the Economies have based the technical requirements on the same or similar source documents. However there are many variations in the peripheral requirements that make and equivalence judgment at this stage not possible.

Cordless Telephone: The requirement of PSTN equipment has a long history in many Economies, and as a result many local requirements have developed. The number of requirements varies considerably. The variations in the requirements are so mixed that is not possible to make equivalence judgements on the requirements. The variations in the requirements are so mixed that it is not possible to make equivalence judgements on the requirements.

Cordless Telephone (2.4GHz):
The radio part of Cordless Telephone has far more similarities provided they are based on the same basic requirement, FCC or ETSI. Economies that do not accept ETSI requirement may require extra testing to meet the documented requirements however it is unlikely that this equipment will not meet those requirement.

The technical requirements for the PSTN have a varied basis in the Economies. Some Economies have requirement limited to network protection, namely Canada and the US, but most Economies include requirements related to network interoperability. It would take a great deal of concentrated effort to come to agreement on a set of requirements between two economies where interoperability requirements are specified.

ISDN Basic Rate NT1:
The results of comparisons of technical requirements vary considerable between the products. Products that are based on relatively new technologies, tend to have more similar technical requirements whereas those based on older technologies tend to have a large amount of historic, Economy based, requirements.

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PSTN Fax Modem:
These vary not only in content and scope of the requirements, but also the way the requirements are specified

Equating Requirements:
Between some economies, it works.

> By focusing on these aspects of the standards and requirements, it balances the need for a safe-to-use and reliable telecommunications network with the ability to allow new technologies into the market quickly and with a minimum of regulatory impost.

Analysis process for Requirements Documents, which use references:
Where these situations have occurred, it has often resulted in an incompatibility between economy's requirements when the requirements are actually aimed at the same products.

Analysis Example - Wireless LAN (2.4 GHz):
The analysis of this case shows that while it is often possible to compare sets of requirements by using or deriving a common parameter, the means of specifying or varying the requirements may make the comparison more complicated.

MRAMS-SEQ Information System Operational Philosophy:
This report can be used as a model of a paper-based analysis that might be undertaken in the future between economies when participation in the MRA-TR begins. It can also be used to role-play a negotiation within the MRA Task Force to highlight the issues and requirements that the MRA-TR drafting group must allow for.

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TEL 01/2004T:

A Comparison of the Equivalence of

Selected Telecommunications Standards

Appendices

APEC Telecommunications & Information Working Group

November 2005

Appendix A: APEC Project Evaluation Form (Annex F3)

A.1 Objectives

1. Did you achieve your objectives and expected results? Did the project meet the needs of the targeted beneficiaries, identify direct and indirect beneficiaries? What was the quality of the product/service you provided?

    - In the Program of Action for the APEC Telecommunications and Information Working Group attached as Annex A to the Lima Declaration, directed the TEL to "commence development of a new MRA on the technical requirements of telecommunications equipment". Effectively, this project has helped to achieve its stated long-term goal prior to its finalisation.
    - Our objectives were met, with the proviso that we did not obtain as much data as we had hoped we would. The results yielded data that has assisted us in providing a valuable insight into the demands and requirements to build a workable MRA on technical regulations.
    - The principal target audience for the project were the MRA Task Force members working on the MRA-TR. The indirect beneficiaries are those wishing to gain some insight as to the viability of Standards Equivalence and those wishing to participate in the future discussions on the MRA-TR.
    - Should the MRA-TR come into being following the work done in this and other future projects and task groups, it would provide benefit to manufacturers and exporters of telecommunications equipment in major reductions in time to market and expense in meeting the regulatory requirements of an importing economy. To Conformity Assessment Bodies recognized by importing economies under the current TEL MRA, it would provide an increase in capability and business opportunity. To consumers it should provide faster access to emerging technologies at reduced cost.
    - The quality of the MRAMS-Standards Equivalence information system and the methods and methodology used to perform the analysis was ground-breaking. No system has ever been built that can provide analysis of this type or depth on such a complex set of technical regulatory data, provide a weighted comparison and ranking and incorporate such a user-friendly feedback mechanism that interfaces the principal data in such a harmonised manner.
    -

2. Show your actual results relative to quantitative measures you proposed in paragraph 1 (and 25) or the project design proposal and evaluate those results relative to your benchmarks and the ranges you indicated would be acceptable in the project design form.

    - This project was to be deemed successful when the charts of equivalent standards were posted to the APEC endorsed MRA Management System. The MRAMS-SEQ information system is - at the date of publication - available to view at www.mrams.com.
    - The aim was to obtain as many of the economy's standards for review for the 6 to 10 selected products as possible. Six products were selected after consultation with the group of project advisors and confirmation and acceptance by the overseer.

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- Our aim was to obtain standards from at least all current TEL MRA participating economies and those aiming to participate within the next 12 months. This was not achieved. Information was received from Australia, Canada, Hong Kong – China, New Zealand, Chinese Taipei and the United States of America. Additional data was added by the project team for the ITU for reference. Requests for data were made during APEC TEL WG meetings at the MRA Task Force, the Liberalisation Steering Group and, on several occasions, during the Plenary. These requests were made by the project manager, chair of the MRATF, chair of the LSG and the APEC TEL Chair. Emails were sent by the same group of people to Points of Contact, MRATF Points of Contact, regulators and MRATF participants for data. This call yielded some response and hence we were able to provide a relevant set of data to assist the MRATF in its work in developing the MRA-TR.
- As stated in the project proposal, it was impossible for us to set targets for the equivalence of standards until such time as the review was completed. This project was a pre-emptive effort to review the possibility to create a MRA on Standards Equivalence and, as such, the possibility of defining final results from this project was negligible.

3. Are there any lessons learned?

   - The principal lesson learnt from delivering the project is that data is a very difficult thing to extract from the economies regardless of how much support is shown when a project is proposed and accepted. A number of the economies that supported the project strongly in the Liberalisation Steering Group and MRA Task Force did not provide us with their data. This continuing issue reduces the success of projects and relevance of the data that they produce as it would appear to an outsider that support for the concepts proposed are not well supported. On the contrary, this concept has been so well supported that it has received Ministerial support for the MRA-TR to be developed prior to the finalisation of the project. We hope that future projects are provided with the support from the economies that they deserve.

4. For Ecotech Projects Only – What impact has the project had in terms of advancing the Ecotech priorities contained in the Manila Framework for Strengthening Economic Cooperation and Development?

   - Not Applicable.

5. Did the project achieve any of the priorities of the Framework for the Integration of Women in APEC?
   Questions that may be relevant are: Were women consulted on the project? Did the project take into account the potentially different needs of women and men? Was the training inclusive and relevant to women's experiences? Was child care available?

   - This is a gender neutral system and no sex-disaggregated data was sought for this project. The data will be available via the APEC TEL MRA Management System website and open to the general public for review. The project team discussion groups will be closed to the general public but no discrimination in relation to its use will occur.
   - There was no gender specific targeting in the scope of this project. All requests for data and information were treated equally with no discrimination on gender or Economy-specific grounds.
   - Participation by women in this project was sought as strategic partners reviewing the draft documentation. Three women participated directly as part of the project team; one each from Australia, the Russian Federation and the USA.

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6. Provide a brief description of the outputs of the project to show the effects on women. Questions that may be relevant are: Was the training for a sector/occupation of the labour market where there is a large proportion of women workers (eg, nursing)? Did the project provide services that assisted many women (eg, health or education)? Did the workshop raise women's confidence or encourage women to seek further training or employment?

   - Not Applicable

A.2 Linkages

Describe how your project involved business/private sector participation (e.g. co-sponsorship of an event, joint work on a project etc.) and which types of business/private sector institutions participated (e.g. non-governmental organizations, schools, labor organizations, womens' groups, corporations, small businesses etc.)

- We obtained support and feedback from the Telecommunications Industry Association of the US, IBM Japan, NATA and Canada's National Research Council. Additionally, we sought feedback from ICT Australia and TIA members. The APT participated in a joint workshop and many ideas and some information was obtained from this.

7. Which other APEC fora (if any) participated in your project? How did you coordinate your work with the work of other APEC fora? How did the project complement or overlap with the work of others?

   - As this project is so revolutionary in its premise and its delivery tools, no other forum in APEC has been able to provide us with assistance. We hope that this concept and these tools may be the foundation for other fora to view standards equivalence as an option for them in their ongoing efforts towards trade liberalisation.
   - We contacted the chair of the APEC SCSC Mutual Recognition Arrangement on Electrical and Electronic Equipment as, at the first SCSC meeting in February 2003, the Work Program adopted for the year 2003 included the "Alignment of Member Economies' standards with International Standards". We had thought that our efforts may be contrary to, or duplicating, those being carried out by this forum. No response has been received to date from them.

A.3 Methodology and Budget

9. Was the project completed on schedule? No
   Was the project completed on budget? Yes

10. Describe any problems which arose and how they were resolved, including changes in schedule or revised dates, budget changes, changes in participation, or additions or deletions of activities.

    - At every stage where a variation or alteration took place, we communicated with the Overseer for the project and obtained their permission and authorisation to proceed. We had 3 overseers during the course of the project but fortunately we were able to deal effectively and harmoniously with each of them through good levels of communication.
    - A number of changes took place during the course of the project. Firstly, we were delayed at the start by 3 months while we waited on the awarding of the project and finalised the contracts with the APEC Secretariat. This was simply a matter of time.
    - The next delay was suggested by as we attempted to gather sufficient data to provide an analysis that had some weight.
    - Changes in personnel participating in the project were communicated to the overseer as they occurred.

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11. What kind of sex-disaggregated data was collected at the beginning, end and during the project, and what did it show? See examples on last page of this Form.

    - Not Applicable.

12. If sex-disaggregated data was not used, indicate why (eg, lack of availability or relevance). Was there any sex-disaggregated data that would have been useful but was not available?

    - The data being analysed and the information developed from it had no sex-disaggregated component to them.

13. Provide sex-disaggregated data on the beneficiaries of the project.

    - Not Applicable.

14. Provide details of the project's budget that was allocated to activities that address the specific needs of women, where appropriate.

    - Not Applicable.

15. Provide details of how the project could have further increased women's involvement or ensured that men and women benefited more equitably?

    - Not Applicable.

A.4 Dissemination of Project Output

16. Describe your deliverables and how they have been disseminated. How have you communicated the results of this project (presentations, newsletters, seminars, journal articles, Web page, video, etc)?

    - This report of the methods and logic used in the analysis and selection of the standards and the project in general will be delivered in a PDF format via the MRA Management System Document Library and attached as a download from an introductory web page to the data analysis pages and charts.
    - A tailored discussion system within the APEC endorsed MRA Management System for use by regulators, standards bodies, conformity assessment bodies and manufacturers to share, discuss and communicate their knowledge of the standards and the methods used to perform prescribed tests was provided.
    - THE MRAMS-Standards Equivalence information system was developed and provided as a web-based chart system for the delivery of the final outputs of the project.
    - A cross-linked Standards Lexicon Database was built within the MRAMS-SEq information system.
    - 200 CD-ROMs will be produced once all the documents have been finalised for dissemination at the March 2006 APEC TEL Meeting in Calgary.
    - All data will be delivered via the web-based APEC TEL MRA Management System and the SEq information system component of it.
    - As per the project proposal and RFP, no hard copies will be produced.
    - Publicity for this project occurred at all The APEC TEL Working Group meetings in since March 2004 and during a verbal report of the draft findings and final report at the Liberalization Steering Group meeting at the APEC TEL in September 2005.

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- Assistance from the APEC Secretariat's public relations department will be sought to provide a press release developed with the assistance of the consultants.

17. What additional actions should be taken to disseminate project results and maximize project impact over the longer term? If relevant, is there any action that the project beneficiary/ies should take to continue improving performance relative to the quantitative measures in paragraph 3 (and 22) of the project design form?

    - There is no need to further expand on the data currently in the MRAMS-SEq information system unless the economies which to use this tool during the negotiations or running of the MRA-TR.
    - What needs to be done is to inform the manufacturers and testing houses in the APEC economies that this MRA is being discussed so that the high levels of industry input achieved by the MRATF in the development of the initial APEC TEL MRA are met again when the MRA-TR is discussed. It has always been recognised that the input by industry was a cornerstone to the relevance and success of the current MRA.
    - Borrowing data from the APT Project which was a follow-up to the seminar that was jointly held with APEC, and whose documents were delivered at the September 2005 MRATF meeting in Korea, the APEC Secretariat should use the figures in "Standards Equivalence: An Economic Impact Statement for the Asia Pacific Region" (A Report for APT - August 2005 - Windsor Place Consulting) as an example of the financial benefits to the economies of developing and participating in the MRA-TR. This 'hard data' is the sort of information that will get support from the press.

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Appendix B: MRAMS Standards Equivalence Information System Users Guide

The APEC MRAMS Standards Equivalence information system (MRAMS–SEQ) is a database application which makes it possible to compare the requirements for products in a number of economies in a convenient and efficient way.

The application generates a number of reports based on selected products that enable the user to view;

- A summary comparison of requirements for products between economies that provided the project with data,
- The details of each comparison presented in a summary,
- The documents relevant to a product in each economy,
- The technical requirements identified for a product in each document,
- The references identified for a product in each economy, and
- A technical comparison of two economies in detail.

The use of these reports allows the user to obtain as much detail as required for their purpose.

The application is accessible via a web interface using a standard browser. The recommended browsers are Firefox˚1.0 or later or IE˚6 or later. The location of then application is www.mrams.net.

B.1 Getting started

When connected to the web site, the user is presented with a page that has a welcome message and a navigation area that allows the selection of;

- Reports, and
- Access to the Forum associated with the application.

The functionality of some of the features will also change depending on the selections made.

The Reports are available from a drop down box. The available reports are;

- Economy Product Matrix
- Economy Documents
- Document Parameter
- Economy Product Requirements
- Economy Product Comparison
- Economy References Matrix
- Economy References
- Lexicon

For a description of the reports refer to Additional Data A.

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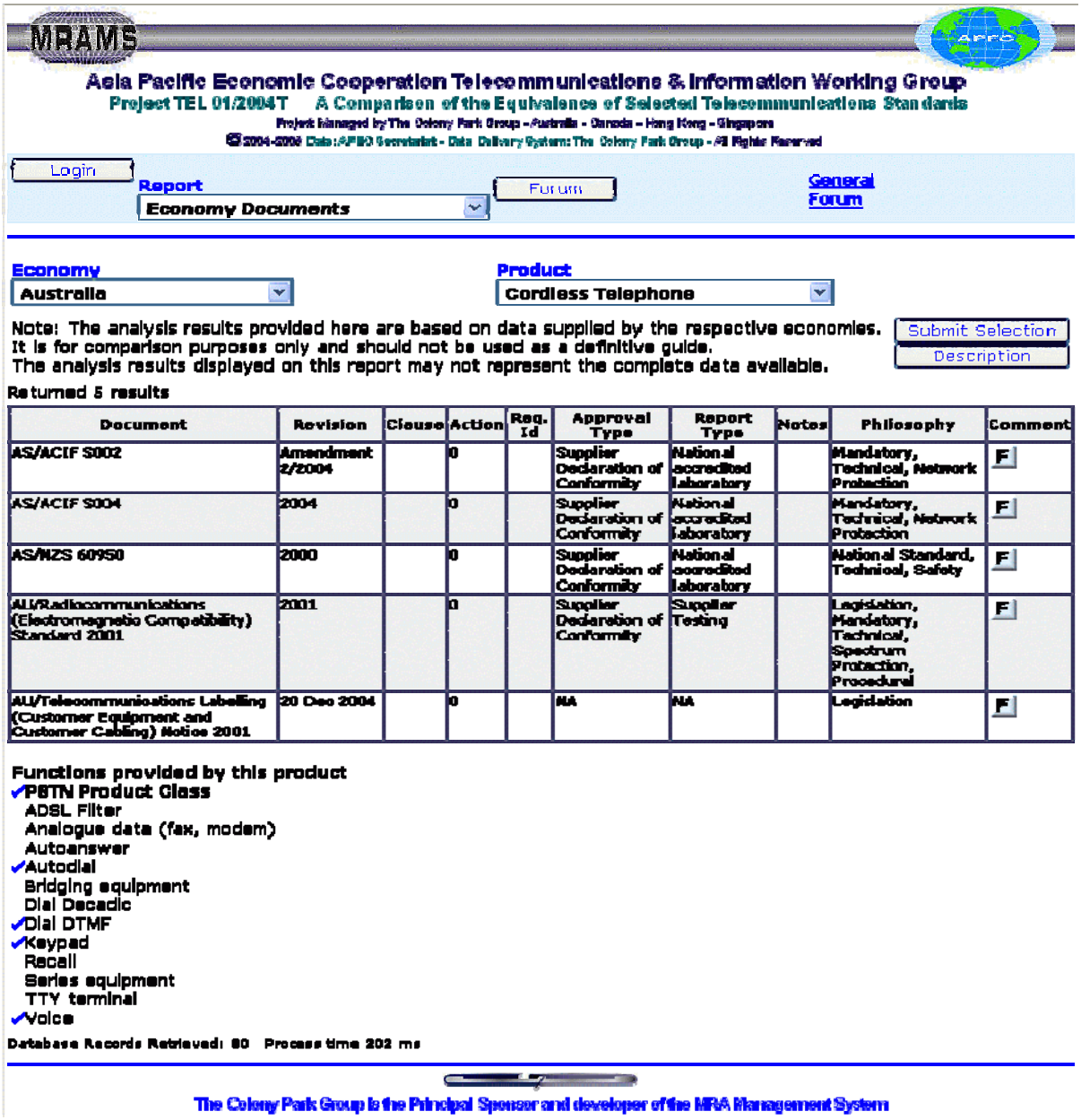
B.2 Standard Reports

Select the Economy Documents Report as an example and a page for the selection of the report parameters is displayed. This is the first step for all reports.

Now select an Economy and Product then Submit your Query.



As well as the selection boxes at the top of the report, there is a Button labelled **Description**. Some reports have other information Buttons such as a **Legend** of symbols. All these **Buttons** will open in a second window or tab to allow you to view the Description and Report at the same time. In some cases there will also be additional information in the Description on the actual report specified.

The **Economy Documents Report** you just selected also has a list of the functions for the selected product attached.

This report has an F Button which allows posting of information on the associated Forums. This or a button like it appears on many pages. Where a **Details Report** is provided on a report, the Forum button will be on the secondary **Details Report** window or tab.

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B.3 Details Reports

A number of the reports contain too much information to be displayed on a single page. These reports contain a **Details** button that allows the full information relating to a parameter in a clause to be displayed. A **Details Report** will show all the Variables relevant to a Parameter that are contained in a clause. For the **Economy Product Requirements Report** all the Variables in the document that relevant to the Parameter are shown.

B.4 Matrix Reports

Most of the reports are tables containing text information like the Economy Documents Report. The two Matrix Reports require a different format to allow the display of a large amount of information in a concise way.

Select the **Economy Product Matrix Report** and select an **Economy** and **Product**.

Because of the large amount of information represented in the matrix reports, symbols are used to summarise the analysis. A legend for the symbols is available from the **top** of the report.

The reports are presented as the compatibility, by requirement, of the selected Economy to all other Economies where data is available for the product. A requirement in the selected Economy is listed in each row and a comparison with the requirement for another Economy is represented by a symbol at the intersection of the row and a column.

The first selection box, Requirements, will change the list of Parameters. The **Import to** selection will only display parameters relevant to the selected **Economy**. The **Export from** and **Import to/Export from** options will also list requirements that are not specified for the selected economy. These requirement rows are present to show the compatibility with an economy where the requirement does exist.

- **NOTE: A cell where there is no symbol indicates that there are no requirements in either Economy.**
-

The symbols are also **Buttons**, which will display a **Details Report** of information on the comparison in a second window or tab.

For a description of the graphics, see the description, Economy Product Matrix Legend, in the Additional Data.

In the matrix reports, not all the details of requirements are listed. This is intended to make it easier to read by removing redundant information. For many comparisons of parameters, there is more than one Variable value to compare. In these cases the result value only is displayed. For example, the measurement of a parameter may be specified by frequency range, voltage levels and reference values as well as a result value. A detailed list of parameters is available when the symbol is clicked.

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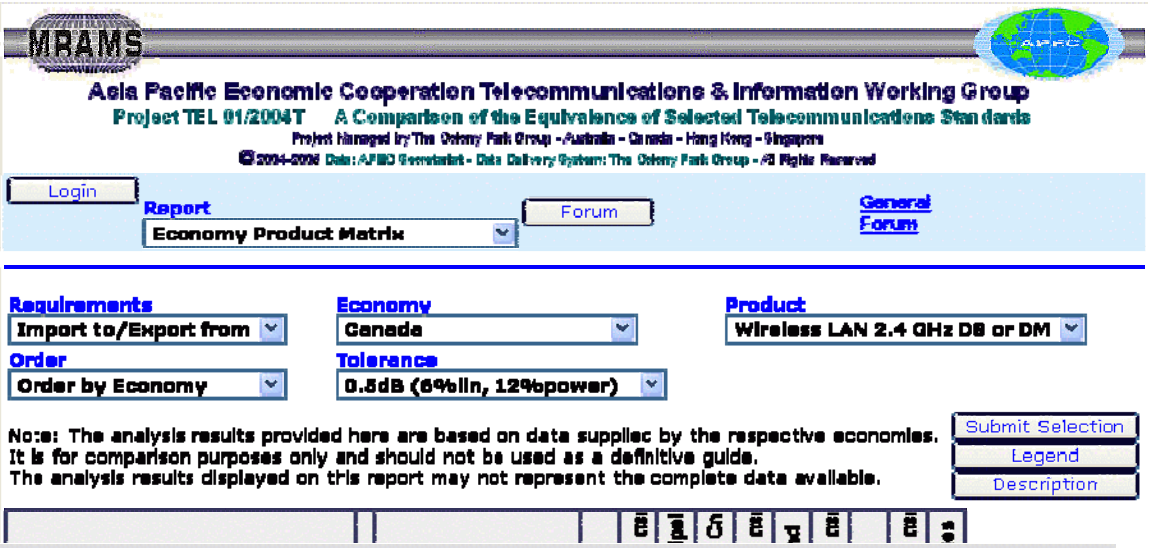
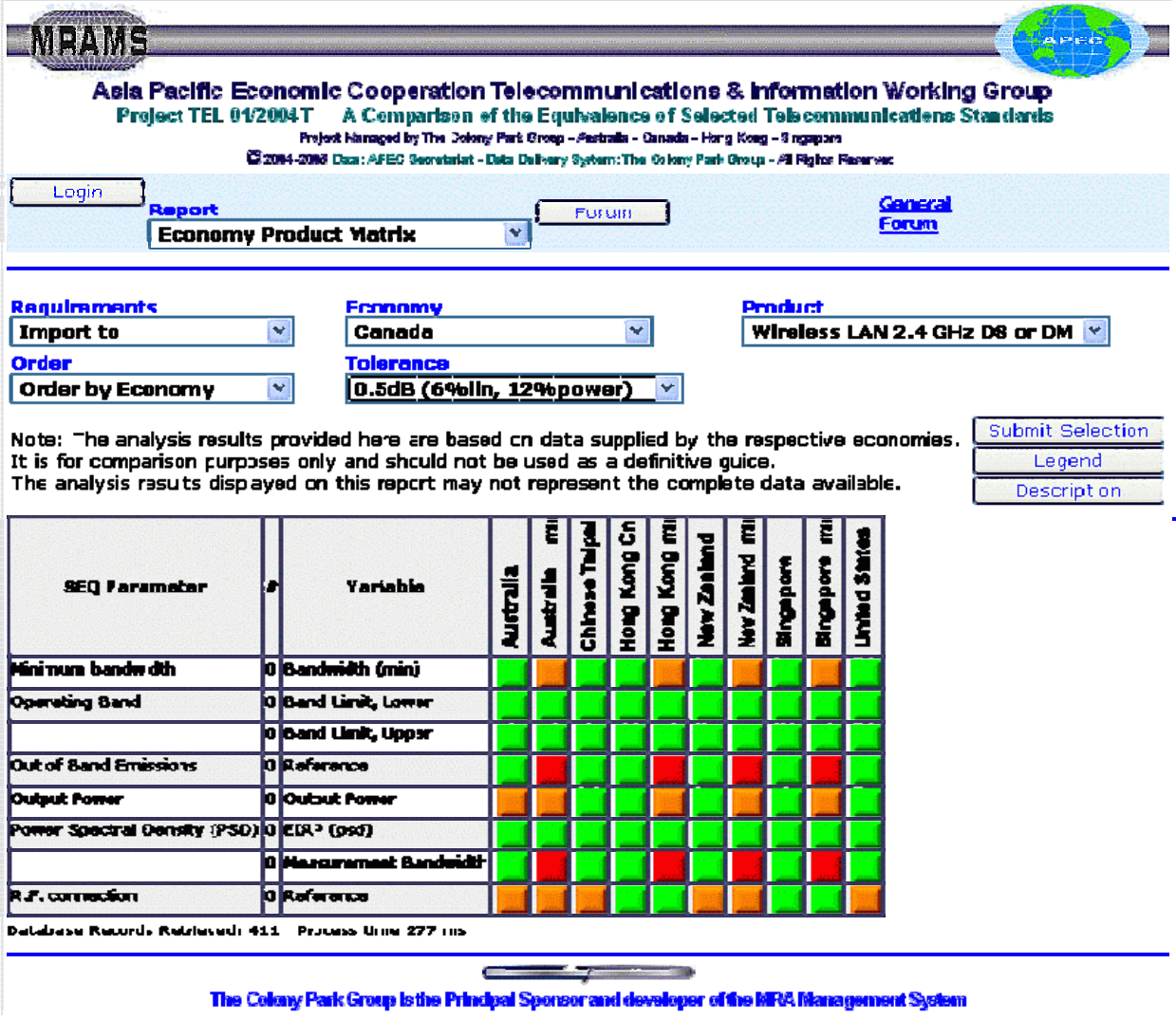

MRAMS
APEC
Asia Pacific Economic Cooperation Telecommunications & Information Working Group
Project TEL 01/2004T A Comparison of the Equivalence of Selected Telecommunications Standards
Project Managed by The Colony Park Group - Australia - Canada - Hong Kong - Singapore
Login
Report
Economy Product Matrix
Forum
General Forum
Requirements
Import to/Export from
Economy
Canada
Product
Wireless LAN 2.4 GHz DS or DM
Order
Order by Economy
Tolerance
0.5dB (6%lin, 12%power)
Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.
Submit Selection
Legend
Description


MRAMS
APEC
Asia Pacific Economic Cooperation Telecommunications & Information Working Group
Project TEL 01/2004T A Comparison of the Equivalence of Selected Telecommunications Standards
Project Managed by The Colony Park Group - Australia - Canada - Hong Kong - Singapore
Login
Report
Economy Product Matrix
Forum
General Forum
Requirements
Import to
Economy
Canada
Product
Wireless LAN 2.4 GHz DS or DM
Order
Order by Economy
Tolerance
0.5dB (6%lin, 12%power)
Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.
Submit Selection
Legend
Description
SEQ Parameter
#
Variable
Australia
Australia mi
Chinese Taipei
Hong Kong Ch
Hong Kong mi
New Zealand
New Zealand mi
Singapore
Singapore mi
United States
Minimum bandwidth
0
Bandwidth (min)
Operating Band
0
Band Limit, Lower
0
Band Limit, Upper
Out of Band Emissions
0
Reference
Output Power
0
Output Power
Power Spectral Density (PSD)
0
EIR² (psd)
0
Measurement Bandwidth
R.F. connection
0
Reference
Database Records Retrieved: 411 Process Time: 277 ms
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B.5 Forums

In the Navigation area is a Button and a hyper-link.

This Button accesses the Forums for the discussion of the information and analysis presented in MRAMS–SEQ. When a Report is selected, the button will open a window in the relevant Forum. If no Report is selected, the Forum index will be opened. To use the Forums, you must first **register**.

The hyper-link gives access to a General Discussion Forum for general comments relating to MRAMS–SEQ.

You will find an Button on many pages. Pressing this Button - or a Button with a descriptive label - will take you to an appropriate Forum. Where such a Button is associated with information, the information will be included in a **Post entry**. See Posting from MRAMS–SEQ for more details on how to use these features.

Please refer to the first topic in each of the Forums for a description of what is intended to be discussed in each.

B.6 Forum Registration

Registration is for the protection of users. Registration requires the entry of a user name, email address, and a password to allow access to the forums. To verify that a real email address has been supplied, registration will be acknowledged by an email, which will contain a link back to the Forums. Your registration will not be effective until you have received the email and used the link.

Please note that the forums have a number of features that you may wish to use or disable. See Additional Data for details of these features and recommendations. You can access these configuration options at any time by selecting Profile at the top of any page.

NOTE: The confirmation code on the registration page is to prevent abuse by hackers using machine registration systems.

B.7 Forum Posting

You can post in the Forums by;

- Post directly from MRAMS–SEQ,
- Replying to an existing post, or
- Add a new topic to a Forum.

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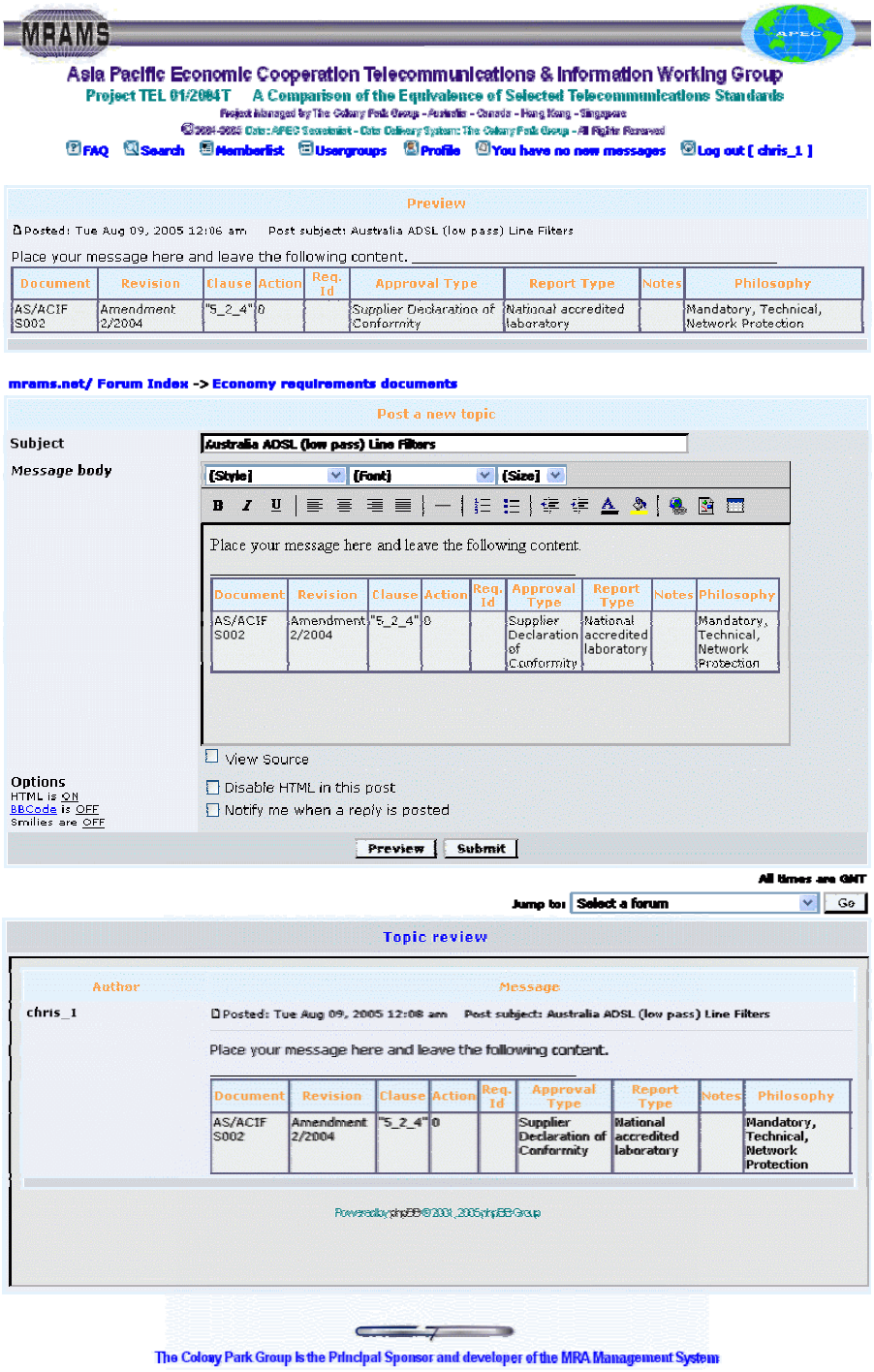
B.8 Posting from MRAMS–Standards Equivalence

Posting directly from MRAMS–SEQ offers features that will make postings clearer for all users. When a post is made relating to particular information on MRAMS–SEQ, the posting will automatically contain the information on which you wish to comment. The information will appear in a preview screen. Notice that the information is very similar to the page in MRAMS–SEQ.



When you intend to post on a specific item of information on MRAMS–SEQ, the application selects the appropriate Forum, and automatically generates a Subject (Topic). All postings on the same information will automatically appear under the same Subject and any previous postings will appear at the bottom of the Preview page.

- **NOTE: Before proceeding with a posting PLEASE check the bottom of the page. In the case where there has already been a post, reply to the existing post in preference to duplicating the information previously posted.**

When adding a new Subject, to preserve the format of the posting, do not edit below the line near the top of the edit window. Replace the **"Place your message here and leave the following content"** text with your comments.

B.9 Posting from the Forums

You can browse the Forums and add comments or reply to a posting using the Reply or Quote Buttons. Navigation of the forums is by the navigation line immediately above and below the tables. You can also add new topic using the New Topic Button.

B.10 Additional Data

7.1.1 Terminology

Requirement	A technical requirement or a requirement specified by reference to another document.
Technical requirement	A requirement specified by a measurement, normally specified by a parameter and set or variables.
Reference	A reference in a document to another document, document revision, or clause of another document revision.

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B.11 Forum Profiles

Username	The username is fixed as that used in the original registration
E-mail address:	The users email address may be update here if required
Current password:	You must confirm your current password if you wish to change it or alter your e-mail address
New/Confirm password:	You only need to supply and confirm a password if you want to change it
Website: Location: Occupation: Interests:	Optional
Signature:	This is a block of text that can be added to posts you make. There is a 255 character limit
Always show my e-mail address:	NO will hide your email address from all users.
Hide your online status:	Optional
Always notify me of replies:	Sends an e-mail when someone replies to a topic you have posted in. This can be changed whenever you post.
Notify on new Private Message:	If yes is selected, the user will receive an email when a private message is received.
Pop up window on new Private Message:	Optional
Always attach my signature:	Optional
Board Language: Board Style:	SET as English & SEQ. No options available.
Timezone:	Select your time zone if you wish time information to display as local time. The default is GMT.
Date format:	Default is in 24 hour time format. Thu Jun 30, 2005 19:58. It is recommended to use the default.

The following are the user profile information settings accessible from the Profile button in the MRAMS–SEQ Forum and suggestions settings.

7.1.2 MRAMS-SEq Db Analysis Report Descriptions

These explanations for the different reports available on the MRAMS-SEq Db appear when a user presses the **Descriptions** button on each report screen.

The Matrix reports are designed to provide a large amount of information in an easy to understand way. To produce this report, the requirement for the Product in every Economy is extracted from the database. Wherever the SEQ Parameters match, the requirements are compared. When ever a valid comparison can be made automatically it occurs. In cases where it is not possible to make an automatic comparison, it is flagged on the Matrix. In these cases, and whenever an automatic comparison is not valid, it is identified in the database, and the results of a manual comparison will be displayed.

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B.12 Economy Product Matrix

The Economy Product Matrix Report is a comparison of the parameters specified by the selected economy against all the other economies that have been analysed for the selected product.

Please Note that as some analysis has been done by comparing references to requirements, reference to both the Economy References Matrix and Economy Product Matrix may be required to see a full picture of the comparison between economies.

The requirement may be filtered for those that are relevant to a product being **imported to** or **exported from** the nominated economy. A display of all the analysed requirements is also available.

The column order of the Economies may be selected as being in **Ordered by Economy** or decreasing **Ordered by Compatibility** with the selected **Economy**. The sorting is on a percentage of compatible displays and is for guidance only. No weighting on the significance of the parameters is performed.

The comparison of values may be given a **Tolerance**. The tolerance selection from 0 to 2 dB allows comparisons with a close result to be easily identified. The tolerances for different unit types are intended to produce a like tolerance for all comparisons.

The **SEQ Parameter** is a harmonized name used to relate **economy parameters,** which may differ in name, but have the same, or very similar technical specification, but not value. The relationship between the **SEQ** and **economy parameter** may be viewed on the **Lexicon** (report) or the **Economy Product Requirements** Report.

A **Variable** is a component used in specifying the requirements for a **parameter**. **Variables** either have associated **values**, or may be associated with a formula or description.
In some cases the **Variable** will not relate to a value but could describe:

- an equation specified in the note field
- a reference to a document, or clause
- a description of the requirement

For each **Parameter/Variable** combination, a comparison is made between the selected **economy's** requirement and the similar requirement of each of the **economies** listed across the top of the results table. The comparison result is displayed as an **icon** to summarise the result. A description of the **icons** can be found by selecting **Legend** at the top of the table. Where there is no **icon**, there is no **parameter** data for the **economies** or the data has not been analysed. For a complete list of the data available for each **economy**, see the **Economy Product Requirements** Report.

The **details** of each comparison can bee seen by clicking on the **icon**.

B.13 Comparison Details

In a many cases the analysis requires the comparison of more than one variable. In these cases simple numeric comparisons can lead to erroneous results. These comparisons are done manually and a description of the result will be found on the Comparison Details Report. In many cases where this type of analysis is required, only one parameter/variable row is displayed on the Matrix. The complete list of variables is available on the Comparison Details Page report.

The Comparison Details Page, accessed by selecting a comparison result Icon, has three parts. The top part is the results of the comparison. Where the comparison is a simple automatic comparison of two values, this will be indicated and normally no other information will be present. Where a manual comparison is required, this will be indicated with a result and a description of the comparison made in the note field.

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The second part of the Comparison Details Page shows the source and application details for the comparison information for the parameter selected.

The lower part shows all the variables relating to the parameter for the two economies Variables that are not displayed on the Matrix page are show with a grey background. The variables are displayed as tables with sets or measurements shows as rows.

A manual comparison is made by comparing all the information available on this page.

The button provides a link to allow posting on the SEQ forums. The information on the row containing the button will be included in the post.

B.14 Document Parameter Description

The Document Parameter report displays the requirement for the Document in the database. If more than one Revision of the Document occurs, a selection of the Revision is required.

The requirements are listed by document clause and are displayed as Parameter, Variable and Value combinations.

A Variable is a component used in specifying the requirements for a parameter. Variables either have associated values, or may be associated with a formula or description.

The Units define the Values. The Limit indicates the requirement for the values when an automatic comparison is made. The limits may be:

- max for a maximum limit
- min for a minimum value
- nom indicates a nominal value, normally specifying a measurement parameter or condition
- equ for equal indicating that the values must be equal
- an empty cell is taken as equ in an automatic comparison

The data presented on this page is not filtered in any way. Data will be present on this page that is not represented on the comparison matrices.

The Details button provides a report of the full information available for the parameter.

B.15 Document Parameter Details

The table at the top of the page shows the full details of the information source. It also shows the SEQ Parameter related to the Economy Parameter and application information. The Applies in Economy information is only relevant for international documents. The Applies to Product has been superseded by the application information at the bottom of the page, but is still present, as not all information has been migrated to the new system.

The variables table shows all variables relating to the clause and selected parameter in the document. Note that some documents have related variables that are in separate clauses so all the information required for analysis may not be present on this page. The variables are shown as measurement sets in rows. The first row may be relevant to all sets where it shows a fixed variable, for example reference impedance.

The last part of the report shows the product application information.

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B.16 Economy Documents Description

The Economy Documents Report is a table of the Documents containing mandatory requirements in an Economy for a Product.

A document may be:

- A Standard
- Legislation
- ITU Recommendation
- Any other Document specifying regulatory requirements for the Economy

In most economies, requirements are specified by reference to documents or parts of documents. Where a document is listed without a specific clause, the whole document is referred to. Where a specific clause is listed, it is only that clause that is referenced.

A reference will normally be the inclusion of requirements, but as some references exclude parts of documents, the Action column is included. The Action column has the meaning of

- Inclusion = 0
- Exclusion = greater than 0

In most cases references many exclude specific clauses. In some cases, a particular parameter, or parameter variable may be excluded or varied in a referenced document. In these cases the Requirement (Req.Id) column indicates which requirement is excluded or varied.

The Approval Type indicates the procedural process required to allow the sale of the product in the economy.

The Report Type is the minimum type of report required to comply with the regulatory requirements.

The Philosophy is the approach taken in the document to meet the aims of the regulatory requirements.

The button provides a link to allow posting on the SEQ forums. The information on the row containing the button will be included in the post.

The Economy Document Report also includes a specification of the Product.

B.17 Economy Product Requirements Description

The Economy Product Requirements report displays the requirement for a Product in the specified Economy.

The Economy Parameters as used in the document and the related SEQ Parameter are listed.

The requirements are listed as Parameter, Variable, Value combinations, with the document and clause specifying the requirement.

A Variable is a component used to specify the requirements for a parameter. Variables either have associated values, or may be associated with a formula or description.

The Units define the Values. The Limit indicates the requirement for the values when an automatic comparison is made. The limits may be:

- max for a maximum limit
- min for a minimum value

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- nom indicates a nominal value, normally specifying a measurement parameter or condition
- equ for equal indicating that the values must be equal
- an empty cell is taken as equ in an automatic comparison

The full details of the requirement can be accessed by clicking on the Details button.

B.18 Document Parameter Details

See details above

B.19 Economy Product Comparison Description

The Economy Product Comparison report displays all the requirements in the database that relate to the specified Product for the selected Economies. The Variable Values associated with each Parameter are displayed together for easy comparison. In cases where the Parameter cannot be represented by simple numbers, the Clause Notes are displayed to aid manual comparisons.

The data presented on this page is not filtered in any way. Data will be present on this page that is not represented on the comparison matrices. The data may be missing from the comparison matrices if:

It is include in a manual comparison with another parameter/variable
The requirement is not mandatory
The requirement has been include as a note to aid analysis

The SEQ Parameters is the harmonized term for the Parameters used in different Economies. The relationship between the SEQ Parameter and the Economy Parameters can be viewed in the Lexicon, or Economy Product Requirements report.

A Variable is a component used in specifying the requirements for a parameter. Variables either have associated values, or may be associated with a formula or description.

The Units define the Values. The Limit indicates the requirement for the values when an automatic comparison is made. The limits may be:

- max for a maximum limit
- min for a minimum value
- nom indicates a nominal value, normally specifying a measurement parameter or condition
- equ for equal indicating that the values must be equal
- an empty cell is taken as equal in an automatic comparison

The details of each comparison can bee seen by clicking on the Details button

B.20 Comparison Details

The Comparison Details Page, accessed by selecting a Details button has two parts.

The first part shows all the variables relating to the parameter for the two economies. The variables are displayed as tables with sets or measurements shows as rows. The variables table shows all variables relating to the selected parameter. The variables will be shown but the source clause not identified. The source clause can be seen on the Economy Product Requirements Report. The variables are shown as measurement sets in rows. The first row may be relevant to all sets where it shows a fixed variable, for example reference impedance.

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The second part of the Comparison Details Page shows the source and application details for the comparison information for the parameter selected. The first table page shows the full details of the information source. It also shows the SEQ Parameter related to the Economy Parameter and application information. The Applies in Economy information is only relevant for international documents. The Applies to Product has been superseded by the application information at the bottom of the page, but is still present, as not all information has been migrated to the new system.

The last part of the report shows the product application information.

The button provides a link to allow posting on the SEQ forums. The information on the row containing the button will be included in the post.
Economy References Matrix Description In a number of cases, the technical requirements for a product are specified completely by reference to international, regional or other commonly used documents. In these cases a complete analysis of the requirements of these documents is not necessary. This report is intended to display the results of an analysis of requirements that are specified in this way.

Please Note that reference to both the Economy References Matrix and Economy Product Matrix may be required to see a full picture of the comparison between economies.

The reference may be filtered for those that are relevant to a Product being Imported To or Exported From the nominated Economy. A display of all the analysed requirements is also available.

When comparing references, the results are normally only identical, or a requirement exists in one Economy and not the other. The exception to this is for documents with Economy variations contained in the document.

Economy References Description.
The Economy References Report is a table of the References contained in the mandatory documents for a Product in each Economy

The report includes all references that are included as requirement in mandatory documents. Where a reference is to another document from the same Economy, the reference is for information only and is not used for comparison purposes. The requirements of the second document will be treated separately. Where a reference is to a common international document, this reference will often be used for comparison purposes in the Economy References Matrix.

The button provides a link to allow posting on the SEQ forums. The information on the row containing the button will be included in the post.

B.21 Economy References Matrix Description

In a number of cases, the technical requirements for a product are specified completely by reference to international, regional or other commonly used documents. In these cases a complete analysis of the requirements of these documents is not necessary. This report is intended to display the results of an analysis of requirements that are specified in this way.

Please Note that reference to both the Economy References Matrix and Economy Product Matrix may be required to see a full picture of the comparison between economies.

The reference may be filtered for those that are relevant to a Product being Imported To or Exported From the nominated Economy. A display of all the analysed requirements is also available.

When comparing references, the results are normally only identical, or a requirement exists in one Economy and not the other. The exception to this is for documents with Economy variations contained in the document.

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B.22 Economy References Description

The Economy References Report is a table of the References contained in the mandatory documents for a Product in each Economy

The report includes all references that are included as requirement in mandatory documents. Where a reference is to another document from the same Economy, the reference is for information only and is not used for comparison purposes. The requirements of the second document will be treated separately. Where a reference is to a common international document, this reference will often be used for comparison purposes in the Economy References Matrix.

The button provides a link to allow posting on the SEQ forums. The information on the row containing the button will be included in the post.

B.23 Lexicon Description

The Lexicon shows the relationship between the SEQ Parameters and Economy Parameters. The SEQ Parameter is a standardised name used to relate the Economy Parameters of different Economies, which may differ in name but have the same, or very similar technical specifications, but not necessarily value(s).

The Lexicon can be displayed;

- on an Economy basis or
- as a comparison between Economies

The display can be filtered for a specific Product.

The Lexicon also displays the Document where the Economy Parameter was found and a Description of the Economy Parameter. The Description is either a definition provided in the Document, or as many documents do not explicitly define the parameters, the clause, or part there of, where the Economy Parameter is used.

The button provides a link to allow posting on the SEQ forums. The information on the row containing the button will be included in the post.

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Appendix C: Data from MRAMS-SEq

Below is the Legend information page from the MRAMS-SEq information system.

ApecSEQ:Report Details

MRAMS

Asia Pacific Economic Cooperation Telecommunications & Information Working Group

Project TEL 01/2004T A Comparison of the Equivalence of Selected Telecommunications Standards

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Report Select Report Forum General Forum Users Guide

Economy Product Matrix Legend

Selecting a **symbol** will display the source of the requirements and information on the comparison in another window/TAB.

For the **Import to** and **Export from** selections the **symbols** have the following meanings:

- The requirements are compatible and the comparison indicates selected operation possible.
- The requirements are incompatible and the product needs reassessment before the nominated operation.
- There are requirements in the destination Economy that do not exist in the source Economy. An assessment is necessary for the nominated operation.

For the **Import to/Export from** selection the symbols have the following meanings

- The requirements in both Economies are the same.
- The requirements in the selected economy are compatible with the column economy, but requirements of the column economy are not compatible with the selected economy.
- There are no requirements in the column economy but requirements in the selected economy.
- The requirements in the column economy are compatible with the nominated economy, but the requirements in the selected economy are not compatible with the column economy.
- There are no requirements in the selected economy, but requirements in the column economy.
- The requirements are not comparable. That is the specification of the requirements are such that at a meaningful comparison is not possible
- The requirements are not compatible. That is the requirements are mutually exclusive
- A manual comparison is required but has not been entered into the database. This symbol indicates that an automatic comparison is not possible and a manual comparison is required.

For all reports where a tolerance is selected.

- The requirements for the Economies are within the **Tolerance** selected.

Blue in the top left corner of a symbol indicates that a **manual assessment** has been made for this comparison.

Database Records Retrieved: 27 Process time 42 ms
Total site visitors: 75 Total site visits: 171

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C.1 ADSL (Low Pass) Filter

C.1.1 Import to Australia

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

ApecSEQ:Report

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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: Australia
Product: ADSL (low pass) Line Filters
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Chinese Taipai	New Zealand	Singapore	Canada	United States
Absolute Group Delay	1	1 Time us					
ADSL band bridging loss	1	1 Level, relative (dB max)					
	2	2 Level, relative (dB max)					
Attenuation	1	1 Level, relative (dB min)					
	2	2 Level, relative (dB min)					
	3	3 Level, relative (dB min)					
DC drop	0	Voltage (dc min)					
DC Resistance	0	Resistance (ohms max)					
Group Delay Distortion	1	1 Time us					
	2	2 Time us					
	3	3 Time us					
	4	4 Time us					
Insertion loss	1	1 Level, relative (dB max)					
Insulation resistance, line to ground	0	Resistance M					
Insulation resistance, on hook, line to line	0	Resistance M					
Return Loss	1	1 Level, relative (dB min)					
	2	2 Level, relative (dB min)					
ring voltage reduction distributed	0	-					

Database Records Retrieved: 371 Process time 888 ms
Total site visitors: 75 Total site visits: 171

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C.1.2 Import to Canada

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

ApecSEQ:Report

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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: Canada
Product: ADSL (low pass) Line Filters
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	United States	Singapore	Chinese Taipai	New Zealand	Australia
Insertion loss	1	1 Level, relative (dB max)					
Insulation resistance, line to ground	0	Resistance M					
Insulation resistance, on hook, line to line	0	Resistance M					
Longitudinal Balance	1	1 Level, relative (dB min)					
	2	2 Level, relative (dB min)					

Database Records Retrieved: 371 Process time 885 ms
Total site visitors: 75 Total site visits: 171

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C.1.3 Import to New Zealand

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

ApecSEQ:Report

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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: New Zealand
Product: ADSL (low pass) Line Filters
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Chinese Taipai	Singapore	Australia	Canada	United States
ADSL band bridging loss	1	1 Level, relative (dB max)					
Attenuation	1	1 Level, relative (dB min)					
	3	3 Level, relative (dB min)					
DC Resistance	0	Resistance (ohms max)					
Insertion loss	1	1 Frequency (Hz nom)					
	1	1 Level, relative (dB max)					
Insertion loss variation (distortion)	1	1 Level, relative (dB min)					
	1	1 Lower frequency (kHz)					
	1	1 Upper frequency (kHz)					
Insulation resistance, on hook, line to line	0	Resistance M					
Longitudinal Balance	1	1 Level, relative (dB min)					
Network echo balance return loss For 3600 m of cable	0	Level, relative (dB min)					
Network echo balance return loss For all other combinations of cable	0	Level, relative (dB min)					
Telephone sidetone balance return loss	0	Level, relative (dB min)					

Database Records Retrieved: 371 Process time 889 ms
Total site visitors: 75 Total site visits: 171

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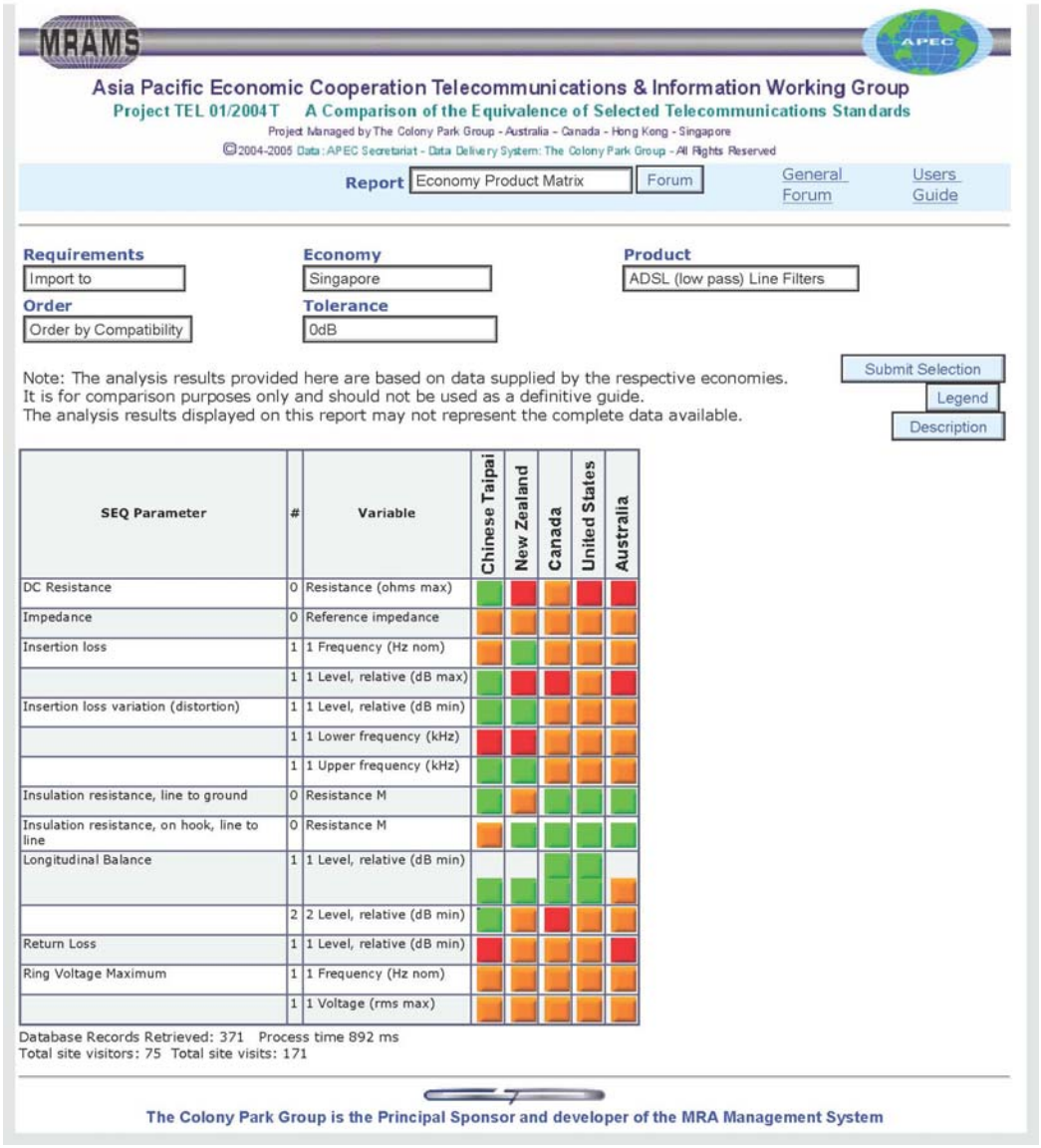
C.1.4 Import to Singapore

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

ApecSEQ:Report



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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: Singapore
Product: ADSL (low pass) Line Filters
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Chinese Taipai	New Zealand	Canada	United States	Australia
DC Resistance	0	Resistance (ohms max)					
Impedance	0	Reference impedance					
Insertion loss	1	1 Frequency (Hz nom)					
	1	1 Level, relative (dB max)					
Insertion loss variation (distortion)	1	1 Level, relative (dB min)					
	1	1 Lower frequency (kHz)					
	1	1 Upper frequency (kHz)					
Insulation resistance, line to ground	0	Resistance M					
Insulation resistance, on hook, line to line	0	Resistance M					
Longitudinal Balance	1	1 Level, relative (dB min)					
	2	2 Level, relative (dB min)					
Return Loss	1	1 Level, relative (dB min)					
Ring Voltage Maximum	1	1 Frequency (Hz nom)					
	1	1 Voltage (rms max)					

Database Records Retrieved: 371 Process time 892 ms
Total site visitors: 75 Total site visits: 171

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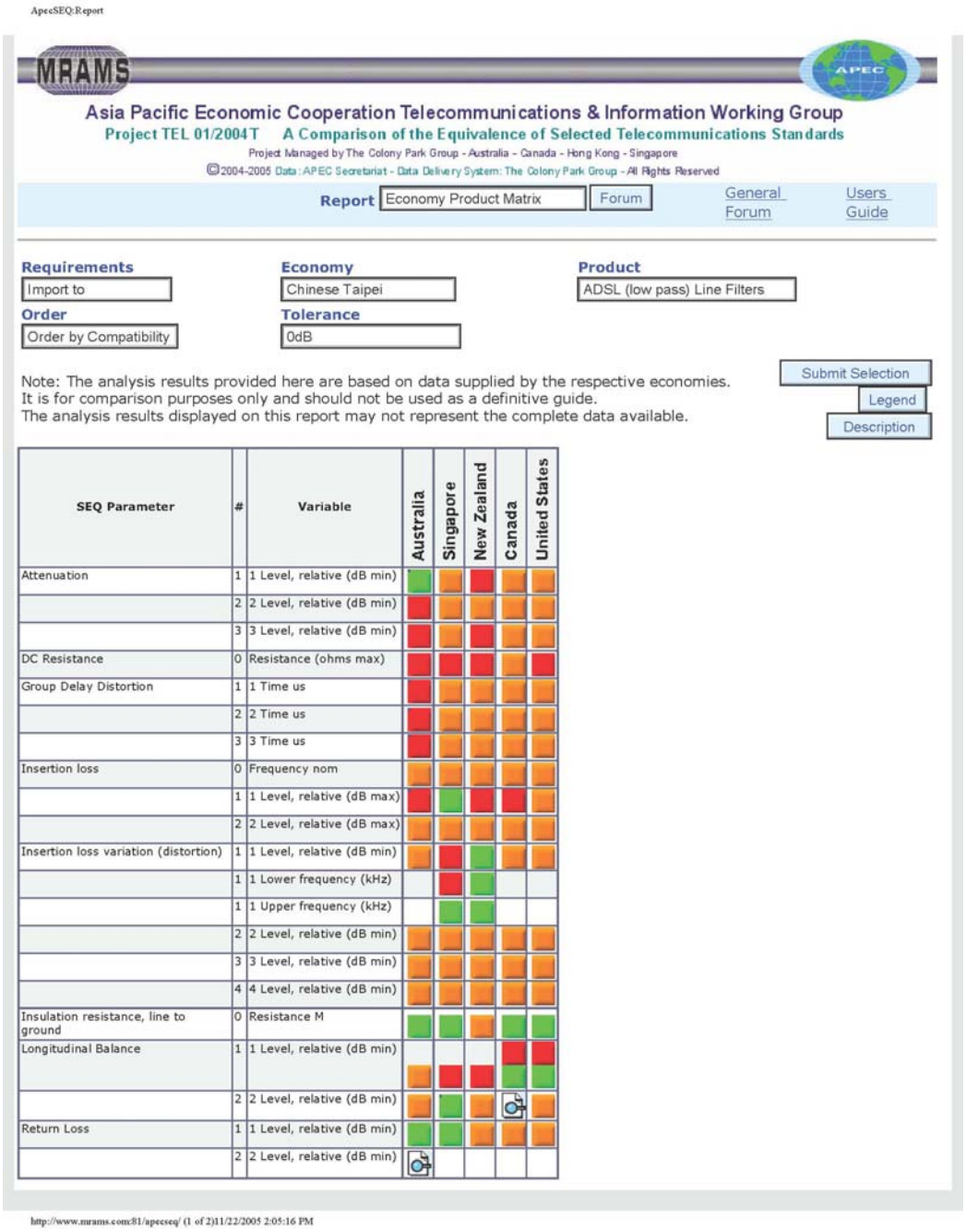
Import to Chinese Taipei

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.



ApecSEQ:Report

MRAMS

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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: Chinese Taipei
Product: ADSL (low pass) Line Filters
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
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The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Australia	Singapore	New Zealand	Canada	United States
Attenuation	1	1 Level, relative (dB min)					
	2	2 Level, relative (dB min)					
	3	3 Level, relative (dB min)					
DC Resistance	0	Resistance (ohms max)					
Group Delay Distortion	1	1 Time us					
	2	2 Time us					
	3	3 Time us					
Insertion loss	0	Frequency nom					
	1	1 Level, relative (dB max)					
	2	2 Level, relative (dB max)					
Insertion loss variation (distortion)	1	1 Level, relative (dB min)					
	1	1 Lower frequency (kHz)					
	1	1 Upper frequency (kHz)					
	2	2 Level, relative (dB min)					
	3	3 Level, relative (dB min)					
	4	4 Level, relative (dB min)					
Insulation resistance, line to ground	0	Resistance M					
Longitudinal Balance	1	1 Level, relative (dB min)					
	2	2 Level, relative (dB min)					
Return Loss	1	1 Level, relative (dB min)					
	2	2 Level, relative (dB min)					

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C.1.5 Import to United States

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Requirements: Import to
Economy: United States
Product: ADSL (low pass) Line Filters
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Canada	Australia	Chinese Taipai	Singapore	New Zealand
DC Resistance	0	Resistance (ohms max)					
Insulation resistance, line to ground	0	Resistance M					
Insulation resistance, on hook, line to line	0	Resistance M					
Longitudinal Balance	1	1 Level, relative (dB min)					

Database Records Retrieved: 371 Process time 876 ms
Total site visitors: 75 Total site visits: 171

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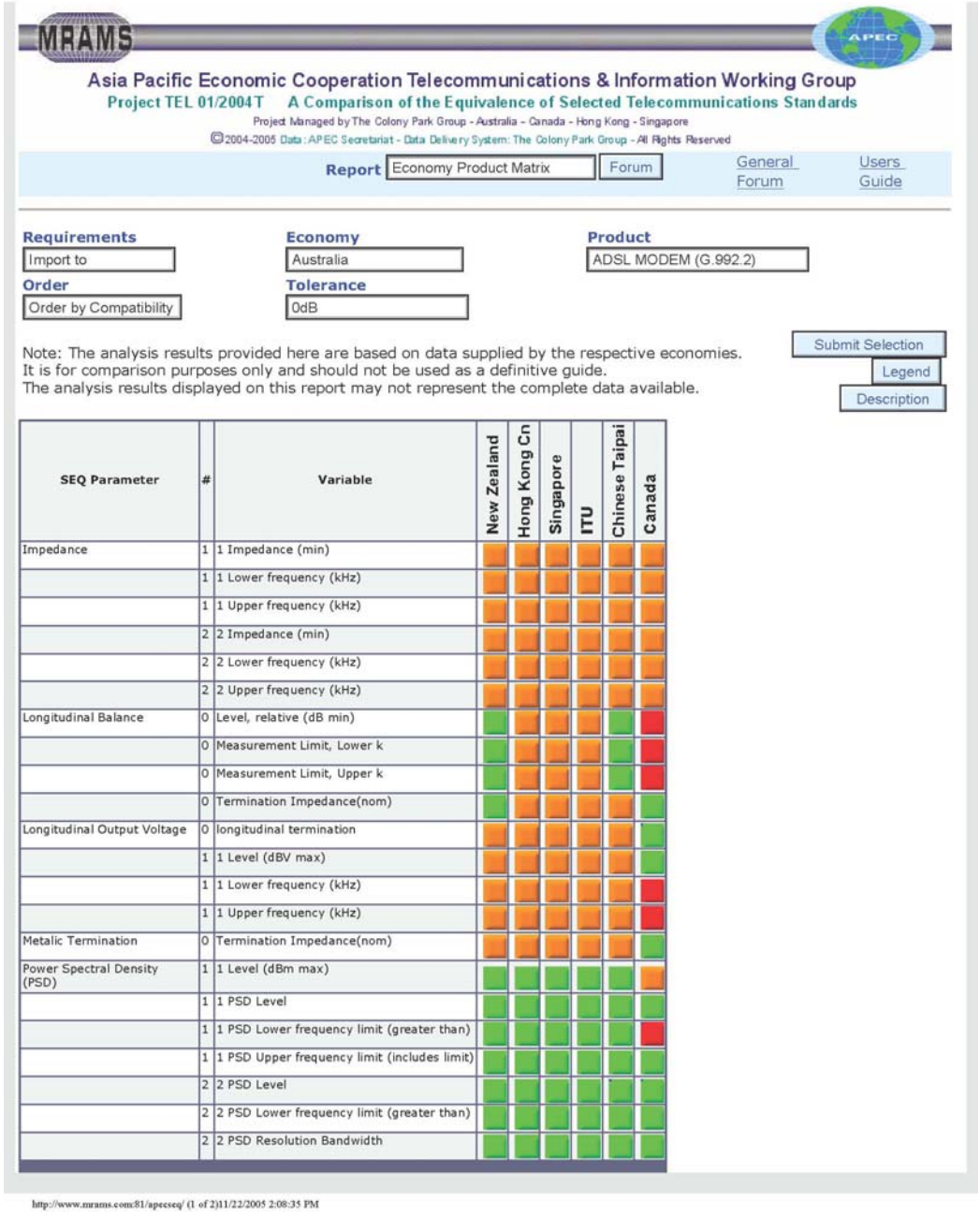
C.2 ADSL MODEM (G.992.2)

C.2.1 Import to Australia

(continued on next page)

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

ApecSEQ:Report



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Requirements: Import to | Economy: Australia | Product: ADSL MODEM (G.992.2)

Order: Order by Compatibility | Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	New Zealand	Hong Kong Cn	Singapore	ITU	Chinese Taipai	Canada
Impedance	1	1 Impedance (min)						
	1	1 Lower frequency (kHz)						
	1	1 Upper frequency (kHz)						
	2	2 Impedance (min)						
	2	2 Lower frequency (kHz)						
	2	2 Upper frequency (kHz)						
Longitudinal Balance	0	Level, relative (dB min)						
	0	Measurement Limit, Lower k						
	0	Measurement Limit, Upper k						
	0	Termination Impedance(nom)						
Longitudinal Output Voltage	0	longitudinal termination						
	1	1 Level (dBV max)						
	1	1 Lower frequency (kHz)						
	1	1 Upper frequency (kHz)						
Metalic Termination	0	Termination Impedance(nom)						
Power Spectral Density (PSD)	1	1 Level (dBm max)						
	1	1 PSD Level						
	1	1 PSD Lower frequency limit (greater than)						
	1	1 PSD Upper frequency limit (includes limit)						
	2	2 PSD Level						
	2	2 PSD Lower frequency limit (greater than)						
	2	2 PSD Resolution Bandwidth						

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(Green) The requirements are compatible. These technical regulations are equivalent.
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(Red) The requirements are incompatible.

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	2	2 PSD Upper frequency limit (includes limit)	
	3	3 PSD Level	
	3	3 PSD Lower frequency limit (greater than)	
	3	3 PSD Resolution Bandwidth	
	3	3 PSD Upper frequency limit (includes limit)	
	4	4 PSD Level	
	4	4 PSD Lower frequency limit (greater than)	
	4	4 PSD Resolution Bandwidth	
	4	4 PSD Upper frequency limit (includes limit)	
	5	5 PSD Level	
	5	5 PSD Lower frequency limit (greater than)	
	5	5 PSD Resolution Bandwidth	
	5	5 PSD Upper frequency limit (includes limit)	
	6	6 PSD Level	
	6	6 PSD Lower frequency limit (greater than)	
	6	6 PSD Power in [f, f=1MHz] window	
	6	6 PSD Resolution Bandwidth	
	6	6 PSD Upper frequency limit (includes limit)	
	7	7 PSD Level	
	7	7 PSD Lower frequency limit (greater than)	
	7	7 PSD Power in [f, f=1MHz] window	
	7	7 PSD Resolution Bandwidth	
	7	7 PSD Upper frequency limit (includes limit)	
Total average power	0	Averaging time	
	0	Level (dBm max)	
	0	Measurement Limit, Lower k	
	0	Measurement Limit, Upper k	

Database Records Retrieved: 804 Process time 1266 ms
Total site visitors: 75 Total site visits: 171

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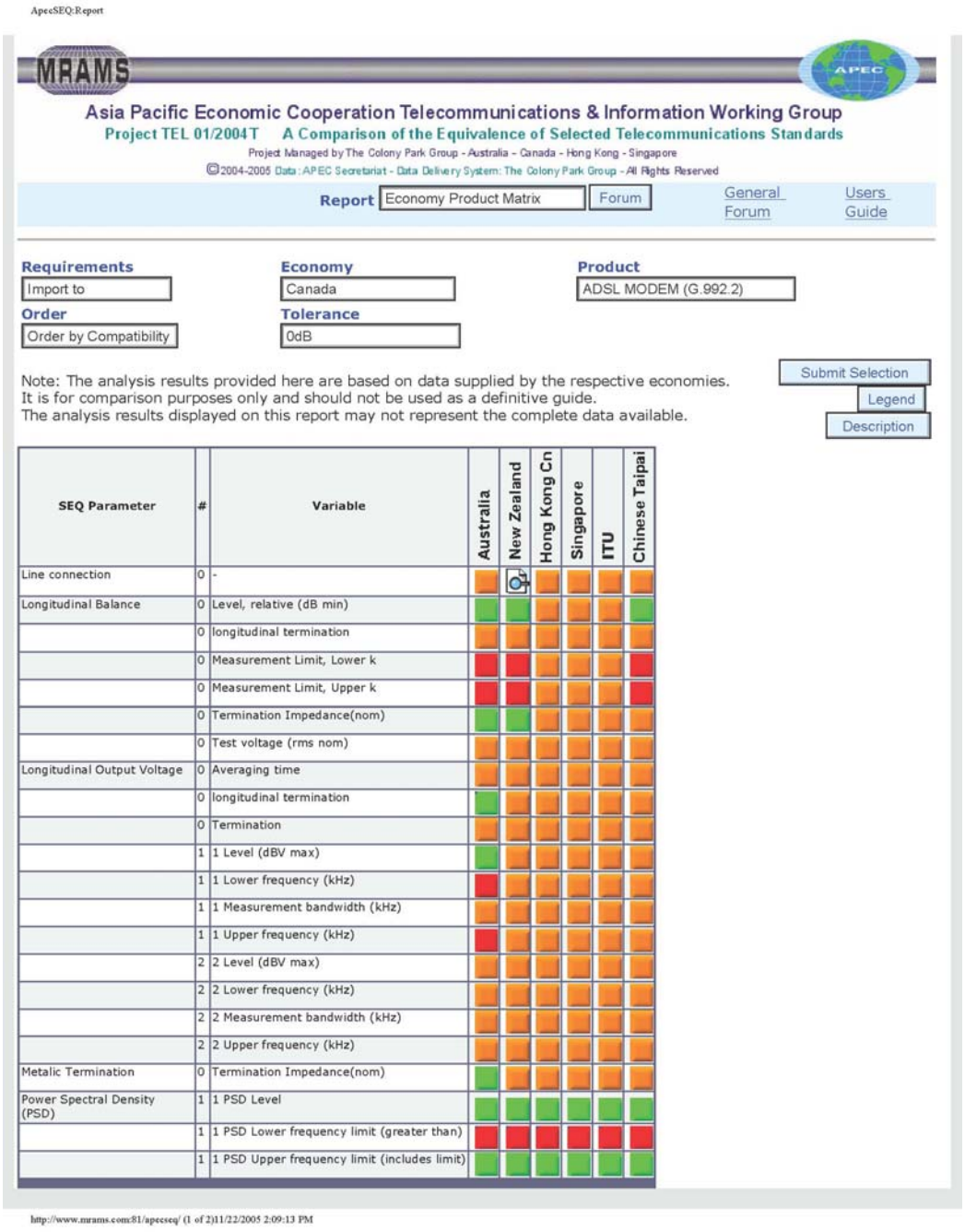
C.2.2 Import to Canada

(continued on next page)

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.



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Requirements: Import to
Economy: Canada
Product: ADSL MODEM (G.992.2)
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Australia	New Zealand	Hong Kong Cn	Singapore	ITU	Chinese Taipai
Line connection	0	-						
Longitudinal Balance	0	Level, relative (dB min)						
	0	longitudinal termination						
	0	Measurement Limit, Lower k						
	0	Measurement Limit, Upper k						
	0	Termination Impedance(nom)						
	0	Test voltage (rms nom)						
Longitudinal Output Voltage	0	Averaging time						
	0	longitudinal termination						
	0	Termination						
	1	1 Level (dBV max)						
	1	1 Lower frequency (kHz)						
	1	1 Measurement bandwidth (kHz)						
	1	1 Upper frequency (kHz)						
	2	2 Level (dBV max)						
	2	2 Lower frequency (kHz)						
	2	2 Measurement bandwidth (kHz)						
	2	2 Upper frequency (kHz)						
Metalic Termination	0	Termination Impedance(nom)						
Power Spectral Density (PSD)	1	1 PSD Level						
	1	1 PSD Lower frequency limit (greater than)						
	1	1 PSD Upper frequency limit (includes limit)						

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(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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	2	2 PSD Level						
	2	2 PSD Lower frequency limit (greater than)						
	2	2 PSD Resolution Bandwidth						
	2	2 PSD Upper frequency limit (includes limit)						
	3	3 PSD Level						
	3	3 PSD Lower frequency limit (greater than)						
	3	3 PSD Resolution Bandwidth						
	3	3 PSD Upper frequency limit (includes limit)						
	4	4 PSD Level						
	4	4 PSD Lower frequency limit (greater than)						
	4	4 PSD Resolution Bandwidth						
	4	4 PSD Upper frequency limit (includes limit)						
	5	5 PSD Level						
	5	5 PSD Lower frequency limit (greater than)						
	5	5 PSD Resolution Bandwidth						
	5	5 PSD Upper frequency limit (includes limit)						
	6	6 PSD Level						
	6	6 PSD Lower frequency limit (greater than)						
	6	6 PSD Resolution Bandwidth						
	6	6 PSD Upper frequency limit (includes limit)						
	7	7 PSD Level						
	7	7 PSD Lower frequency limit (greater than)						
	7	7 PSD Resolution Bandwidth						
	7	7 PSD Upper frequency limit (includes limit)						
Total average power	0	Level (dBm max)						
	0	Measurement Limit, Lower k						
	0	Measurement Limit, Upper k						

Database Records Retrieved: 804 Process time 1248 ms
Total site visitors: 75 Total site visits: 171

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C.2.3 Import to Hong Kong - China

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(Red) The requirements are incompatible.

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Requirements: Import to
Economy: Hong Kong - China
Product: ADSL MODEM (G.992.2)
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
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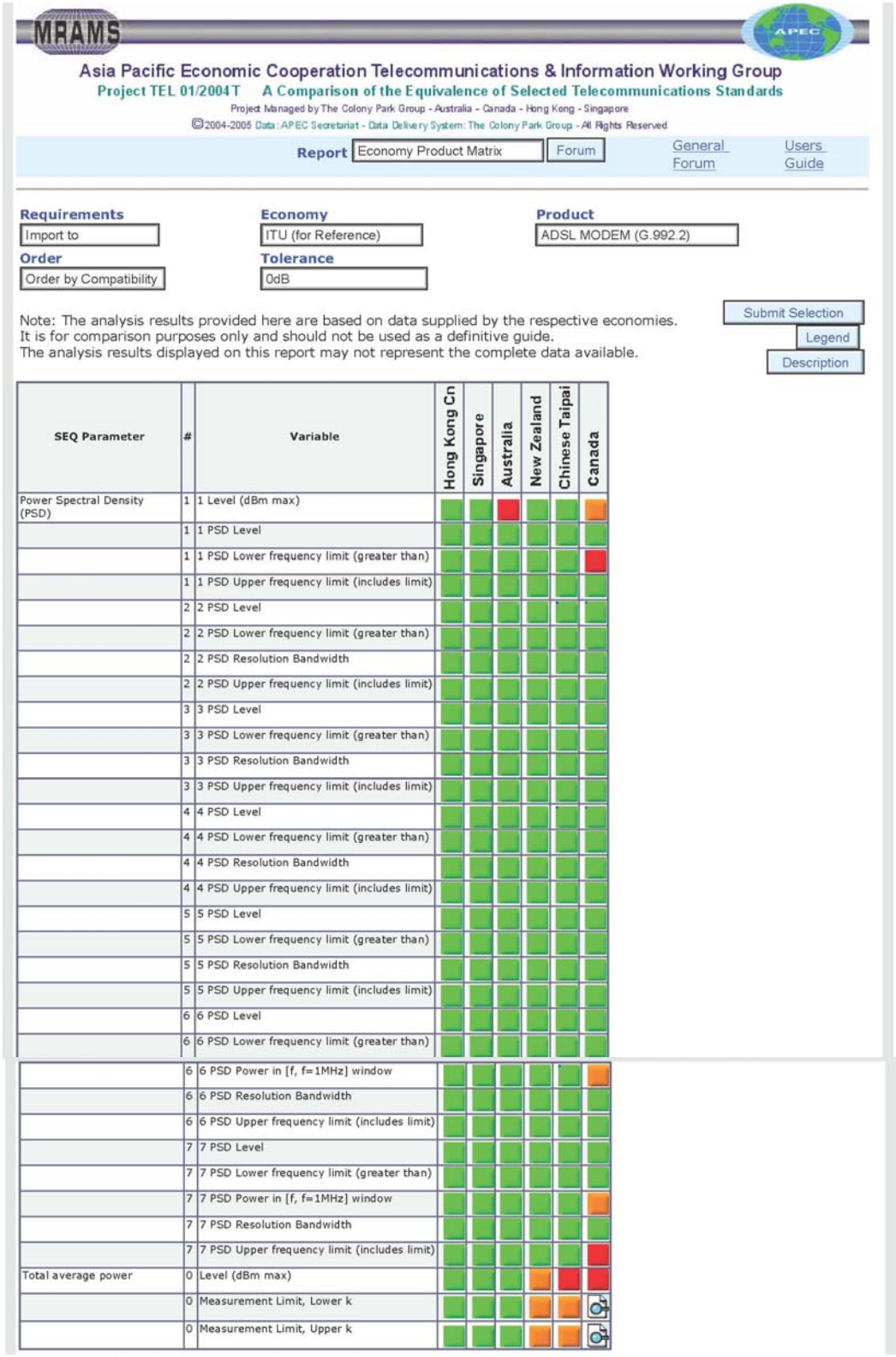
Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Singapore	ITU	Australia	New Zealand	Chinese Taipei	Canada
Power Spectral Density (PSD)	1	1 Level (dBm max)						
	1	1 PSD Level						
	1	1 PSD Lower frequency limit (greater than)						
	1	1 PSD Upper frequency limit (includes limit)						
	2	2 PSD Level						
	2	2 PSD Lower frequency limit (greater than)						
	2	2 PSD Resolution Bandwidth						
	2	2 PSD Upper frequency limit (includes limit)						
	3	3 PSD Level						
	3	3 PSD Lower frequency limit (greater than)						
	3	3 PSD Resolution Bandwidth						
	3	3 PSD Upper frequency limit (includes limit)						
	4	4 PSD Level						
	4	4 PSD Lower frequency limit (greater than)						
	4	4 PSD Resolution Bandwidth						
	4	4 PSD Upper frequency limit (includes limit)						
	5	5 PSD Level						
	5	5 PSD Lower frequency limit (greater than)						
	5	5 PSD Resolution Bandwidth						
	5	5 PSD Upper frequency limit (includes limit)						
	6	6 PSD Level						
	6	6 PSD Lower frequency limit (greater than)						
	6	6 PSD Power in [f, f=1MHz] window						
	6	6 PSD Resolution Bandwidth						
	6	6 PSD Upper frequency limit (includes limit)						
	7	7 PSD Level						
	7	7 PSD Lower frequency limit (greater than)						
	7	7 PSD Power in [f, f=1MHz] window						
	7	7 PSD Resolution Bandwidth						
	7	7 PSD Upper frequency limit (includes limit)						
Total average power	0	Level (dBm max)						
	0	Measurement Limit, Lower k						
	0	Measurement Limit, Upper k						

Database Records Retrieved: 804 Process time 1261 ms

C.2.4 ITU (For Reference)

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.



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Requirements: Import to
Economy: ITU (for Reference)
Product: ADSL MODEM (G.992.2)
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Hong Kong Cn	Singapore	Australia	New Zealand	Chinese Taipai	Canada
Power Spectral Density (PSD)	1	1 Level (dBm max)						
	1	1 PSD Level						
	1	1 PSD Lower frequency limit (greater than)						
	1	1 PSD Upper frequency limit (includes limit)						
	2	2 PSD Level						
	2	2 PSD Lower frequency limit (greater than)						
	2	2 PSD Resolution Bandwidth						
	2	2 PSD Upper frequency limit (includes limit)						
	3	3 PSD Level						
	3	3 PSD Lower frequency limit (greater than)						
	3	3 PSD Resolution Bandwidth						
	3	3 PSD Upper frequency limit (includes limit)						
	4	4 PSD Level						
	4	4 PSD Lower frequency limit (greater than)						
	4	4 PSD Resolution Bandwidth						
	4	4 PSD Upper frequency limit (includes limit)						
	5	5 PSD Level						
	5	5 PSD Lower frequency limit (greater than)						
	5	5 PSD Resolution Bandwidth						
	5	5 PSD Upper frequency limit (includes limit)						
	6	6 PSD Level						
	6	6 PSD Lower frequency limit (greater than)						
	6	6 PSD Power in [f, f=1MHz] window						
	6	6 PSD Resolution Bandwidth						
	6	6 PSD Upper frequency limit (includes limit)						
	7	7 PSD Level						
	7	7 PSD Lower frequency limit (greater than)						
	7	7 PSD Power in [f, f=1MHz] window						
	7	7 PSD Resolution Bandwidth						
	7	7 PSD Upper frequency limit (includes limit)						
Total average power	0	Level (dBm max)						
	0	Measurement Limit, Lower k						
	0	Measurement Limit, Upper k						

C.2.5 Import to New Zealand

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Requirements: Import to
Economy: New Zealand
Product: ADSL MODEM (G.992.2)
Order: Order by Compatibility
Tolerance: 0dB

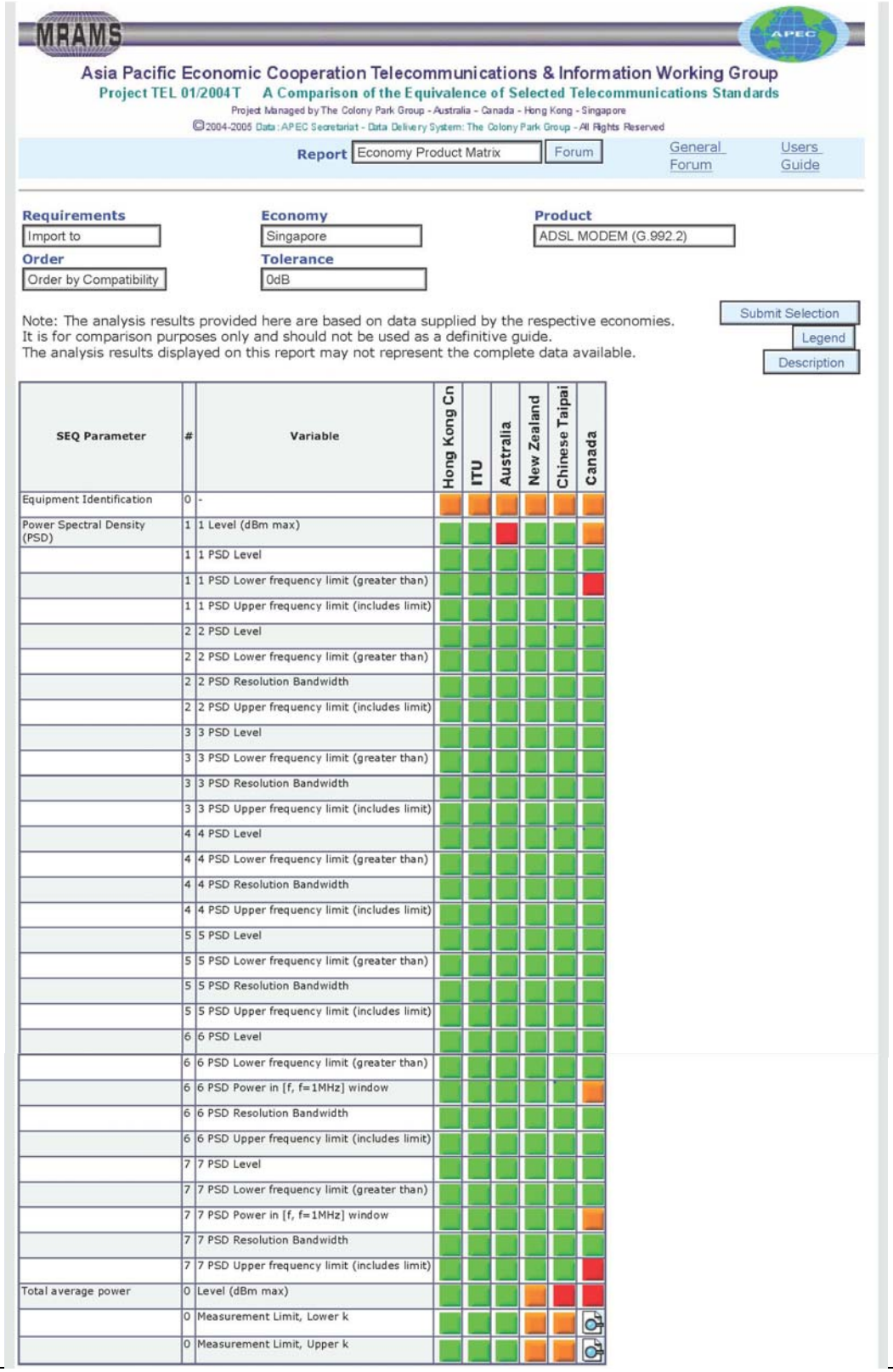
Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Australia	Chinese Taipai	Hong Kong Cn	Singapore	ITU	Canada
Input Impedance Voiceband	0	Input Impedance						
Interoperability	0	-						
Line connection	0	-						
Line Insulation	0	-						
Longitudinal Balance	0	Level, relative (dB min)						
	0	Measurement Limit, Lower k						
	0	Measurement Limit, Upper k						
	0	Termination Impedance(nom)						
Power Spectral Density (PSD)	1	1 Level (dBm max)						
	1	1 PSD Level						
	1	1 PSD Lower frequency limit (greater than)						
	1	1 PSD Upper frequency limit (includes limit)						
	2	2 PSD Level						
	2	2 PSD Lower frequency limit (greater than)						
	2	2 PSD Resolution Bandwidth						
	2	2 PSD Upper frequency limit (includes limit)						
	3	3 PSD Level						
	3	3 PSD Lower frequency limit (greater than)						
	3	3 PSD Resolution Bandwidth						
	3	3 PSD Upper frequency limit (includes limit)						
	4	4 PSD Level						
	4	4 PSD Lower frequency limit (greater than)						
	4	4 PSD Resolution Bandwidth						
	4	4 PSD Upper frequency limit (includes limit)						
	5	5 PSD Level						
	5	5 PSD Lower frequency limit (greater than)						
	5	5 PSD Resolution Bandwidth						
	5	5 PSD Upper frequency limit (includes limit)						
	6	6 PSD Level						
	6	6 PSD Lower frequency limit (greater than)						
	6	6 PSD Power in [f, f=1MHz] window						
	6	6 PSD Resolution Bandwidth						
	6	6 PSD Upper frequency limit (includes limit)						
	7	7 PSD Level						
	7	7 PSD Lower frequency limit (greater than)						
	7	7 PSD Power in [f, f=1MHz] window						
	7	7 PSD Resolution Bandwidth						
	7	7 PSD Upper frequency limit (includes limit)						

C.2.6 Import to Singapore

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.



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Requirements: Import to
Economy: Singapore
Product: ADSL MODEM (G.992.2)
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Hong Kong Cn	ITU	Australia	New Zealand	Chinese Taipai	Canada
Equipment Identification	0	-						
Power Spectral Density (PSD)	1	1 Level (dBm max)						
	1	1 PSD Level						
	1	1 PSD Lower frequency limit (greater than)						
	1	1 PSD Upper frequency limit (includes limit)						
	2	2 PSD Level						
	2	2 PSD Lower frequency limit (greater than)						
	2	2 PSD Resolution Bandwidth						
	2	2 PSD Upper frequency limit (includes limit)						
	3	3 PSD Level						
	3	3 PSD Lower frequency limit (greater than)						
	3	3 PSD Resolution Bandwidth						
	3	3 PSD Upper frequency limit (includes limit)						
	4	4 PSD Level						
	4	4 PSD Lower frequency limit (greater than)						
	4	4 PSD Resolution Bandwidth						
	4	4 PSD Upper frequency limit (includes limit)						
	5	5 PSD Level						
	5	5 PSD Lower frequency limit (greater than)						
	5	5 PSD Resolution Bandwidth						
	5	5 PSD Upper frequency limit (includes limit)						
	6	6 PSD Level						
	6	6 PSD Lower frequency limit (greater than)						
	6	6 PSD Power in [f, f=1MHz] window						
	6	6 PSD Resolution Bandwidth						
	6	6 PSD Upper frequency limit (includes limit)						
	7	7 PSD Level						
	7	7 PSD Lower frequency limit (greater than)						
	7	7 PSD Power in [f, f=1MHz] window						
	7	7 PSD Resolution Bandwidth						
	7	7 PSD Upper frequency limit (includes limit)						
Total average power	0	Level (dBm max)						
	0	Measurement Limit, Lower k						
	0	Measurement Limit, Upper k						

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C.2.7 Import to Chinese Taipei

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
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Requirements: Import to
Economy: Chinese Taipei
Product: ADSL MODEM (G.992.2)
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	New Zealand	Australia	Hong Kong Cn	Singapore	ITU	Canada
Input Impedance Voiceband	0	Input Impedance						
Longitudinal Balance	0	Level, relative (dB min)						
	0	Measurement Limit, Lower k						
	0	Measurement Limit, Upper k						
Power Spectral Density (PSD)	1	1 Level (dBm max)						
	1	1 PSD Level						
	1	1 PSD Lower frequency limit (greater than)						
	1	1 PSD Upper frequency limit (includes limit)						
	2	2 PSD Level						
	2	2 PSD Lower frequency limit (greater than)						
	2	2 PSD Resolution Bandwidth						
	2	2 PSD Upper frequency limit (includes limit)						
	3	3 PSD Level						
	3	3 PSD Lower frequency limit (greater than)						
	3	3 PSD Resolution Bandwidth						
	3	3 PSD Upper frequency limit (includes limit)						
	4	4 PSD Level						
	4	4 PSD Lower frequency limit (greater than)						
	4	4 PSD Resolution Bandwidth						
	4	4 PSD Upper frequency limit (includes limit)						
	5	5 PSD Level						
	5	5 PSD Lower frequency limit (greater than)						
	5	5 PSD Resolution Bandwidth						
	5	5 PSD Upper frequency limit (includes limit)						
	6	6 PSD Level						
	6	6 PSD Lower frequency limit (greater than)						
	6	6 PSD Power in [f, f=1MHz] window						
	6	6 PSD Resolution Bandwidth						
	6	6 PSD Upper frequency limit (includes limit)						
	7	7 PSD Level						
	7	7 PSD Lower frequency limit (greater than)						
	7	7 PSD Power in [f, f=1MHz] window						
	7	7 PSD Resolution Bandwidth						
	7	7 PSD Upper frequency limit (includes limit)						
Total average power	0	Level (dBm max)						

Database Records Retrieved: 804 Process time 1232 ms
Total site visitors: 75 Total site visits: 171

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C.2.8 Import to New Zealand

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Requirements: Import to
Economy: New Zealand
Product: ADSL (low pass) Line Filters
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
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SEQ Parameter	#	Variable	Chinese Taipai	Singapore	Australia	Canada	United States
ADSL band bridging loss	1	1 Level, relative (dB max)					
Attenuation	1	1 Level, relative (dB min)					
	3	3 Level, relative (dB min)					
DC Resistance	0	Resistance (ohms max)					
Insertion loss	1	1 Frequency (Hz nom)					
	1	1 Level, relative (dB max)					
Insertion loss variation (distortion)	1	1 Level, relative (dB min)					
	1	1 Lower frequency (kHz)					
	1	1 Upper frequency (kHz)					
Insulation resistance, on hook, line to line	0	Resistance M					
Longitudinal Balance	1	1 Level, relative (dB min)					
Network echo balance return loss For 3600 m of cable	0	Level, relative (dB min)					
Network echo balance return loss For all other combinations of cable	0	Level, relative (dB min)					
Telephone sidetone balance return loss	0	Level, relative (dB min)					

Database Records Retrieved: 371 Process time 889 ms
Total site visitors: 75 Total site visits: 171

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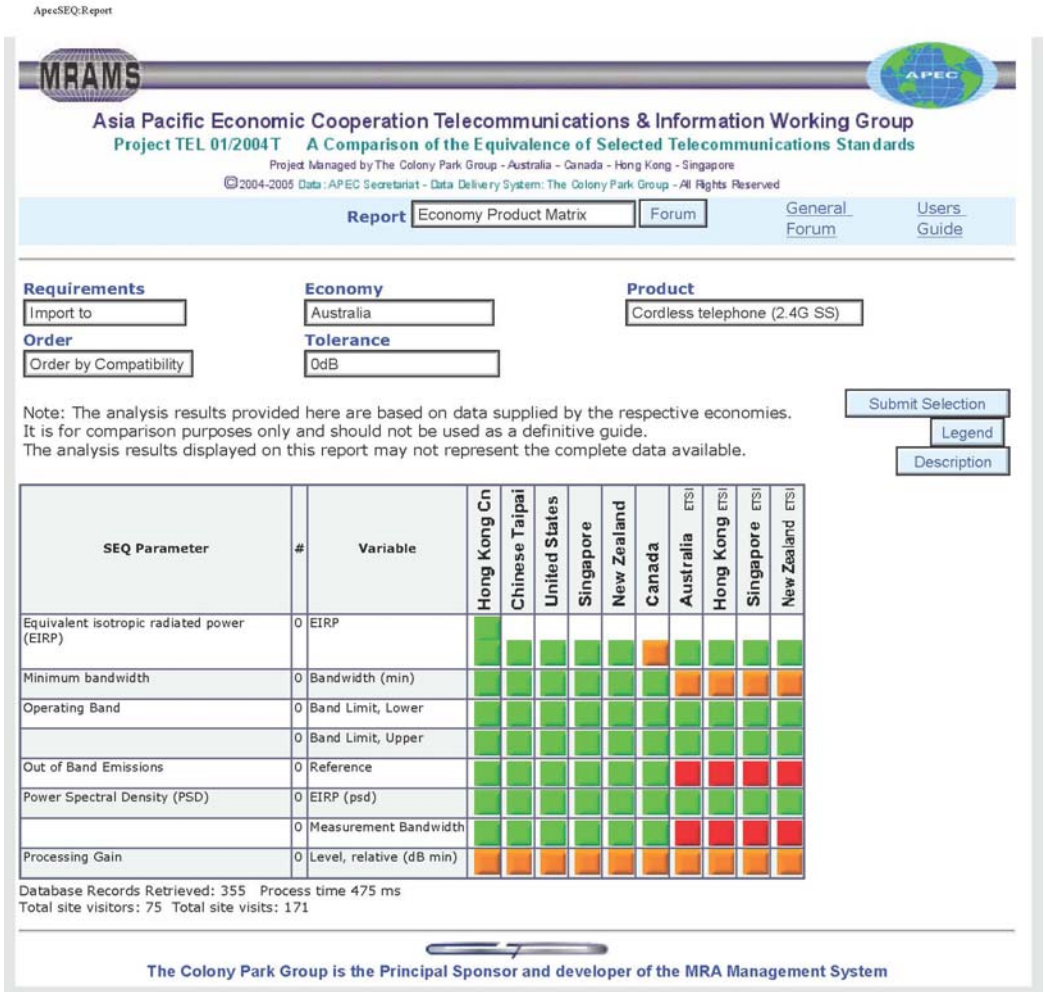
C.3 Cordless Telephone (2.4G SS)

C.3.1 Import to Australia

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.



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Project TEL 01/2004T A Comparison of the Equivalence of Selected Telecommunications Standards

Project Managed by The Colony Park Group - Australia - Canada - Hong Kong - Singapore

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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to | Economy: Australia | Product: Cordless telephone (2.4G SS)

Order: Order by Compatibility | Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Hong Kong Cn	Chinese Taipai	United States	Singapore	New Zealand	Canada	Australia ETSI	Hong Kong ETSI	Singapore ETSI	New Zealand ETSI
Equivalent isotropic radiated power (EIRP)	0	EIRP										
Minimum bandwidth	0	Bandwidth (min)										
Operating Band	0	Band Limit, Lower										
	0	Band Limit, Upper										
Out of Band Emissions	0	Reference										
Power Spectral Density (PSD)	0	EIRP (psd)										
	0	Measurement Bandwidth										
Processing Gain	0	Level, relative (dB min)										

Database Records Retrieved: 355 Process time 475 ms
Total site visitors: 75 Total site visits: 171

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C.3.2 Import to Canada

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: Canada
Product: Cordless telephone (2.4G SS)
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Singapore	Hong Kong Cn	Chinese Taipai	United States	New Zealand	Australia	Hong Kong ETSI	Singapore ETSI	Australia ETSI	New Zealand ETSI
Minimum bandwidth	0	Bandwidth (min)										
Operating Band	0	Band Limit, Lower										
	0	Band Limit, Upper										
Out of Band Emissions	0	Reference										
Output Power	0	Output Power										
Power Spectral Density (PSD)	0	EIRP (psd)										
	0	Measurement Bandwidth										
R.F. connection	0	Reference										

Database Records Retrieved: 355 Process time 476 ms
Total site visitors: 75 Total site visits: 171

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C.3.3 Import to New Zealand

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Requirements: Import to
Economy: New Zealand
Product: Cordless telephone (2.4G SS)
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Chinese Taipai	United States	Singapore	Hong Kong Cn	Australia	Canada	Australia ETSI	Hong Kong ETSI	Singapore ETSI	New Zealand ETSI
Antenna Gain	0	Isotropic Gain										
Equivalent isotropic radiated power (EIRP)	0	EIRP										
Minimum bandwidth	0	Bandwidth (min)										
Operating Band	0	Band Limit, Lower										
	0	Band Limit, Upper										
Out of Band Emissions	0	Reference										
Output Power	0	Output Power										
Power Spectral Density (PSD)	0	EIRP (psd)										
	0	Measurement Bandwidth										

Database Records Retrieved: 355 Process time 492 ms
Total site visitors: 75 Total site visits: 171

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C.3.4 Import to Singapore

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: Singapore
Product: Cordless telephone (2.4G SS)
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Hong Kong Cn	Canada	Chinese Taipai	United States	New Zealand	Australia	Singapore ETSI	Hong Kong ETSI	Australia ETSI	New Zealand ETSI
Antenna Gain	0	Isotropic Gain										
Controls	0	Reference										
Equivalent isotropic radiated power (EIRP)	0	EIRP										
Minimum bandwidth	0	Bandwidth (min)										
Operating Band	0	Band Limit, Lower										
	0	Band Limit, Upper										
Out of Band Emissions	0	Reference										
Output Power	0	Output Power										
Power Spectral Density (PSD)	0	EIRP (psd)										
	0	Measurement Bandwidth										
R.F. connection	0	Reference										

Database Records Retrieved: 355 Process time 493 ms
Total site visitors: 75 Total site visits: 171

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C.3.5 Import to Chinese Taipei

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: Chinese Taipei
Product: Cordless telephone (2.4G SS)
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	United States	Singapore	New Zealand	Hong Kong Cn	Australia	Canada	Australia ETSI	Hong Kong ETSI	Singapore ETSI	New Zealand ETSI
Antenna Gain	0	Isotropic Gain										
Equivalent isotropic radiated power (EIRP)	0	EIRP										
Minimum bandwidth	0	Bandwidth (min)										
Operating Band	0	Band Limit, Lower										
	0	Band Limit, Upper										
Out of Band Emissions	0	Reference										
Output Power	0	Output Power										
Power Spectral Density (PSD)	0	EIRP (psd)										
	0	Measurement Bandwidth										

Database Records Retrieved: 355 Process time 485 ms
Total site visitors: 75 Total site visits: 171

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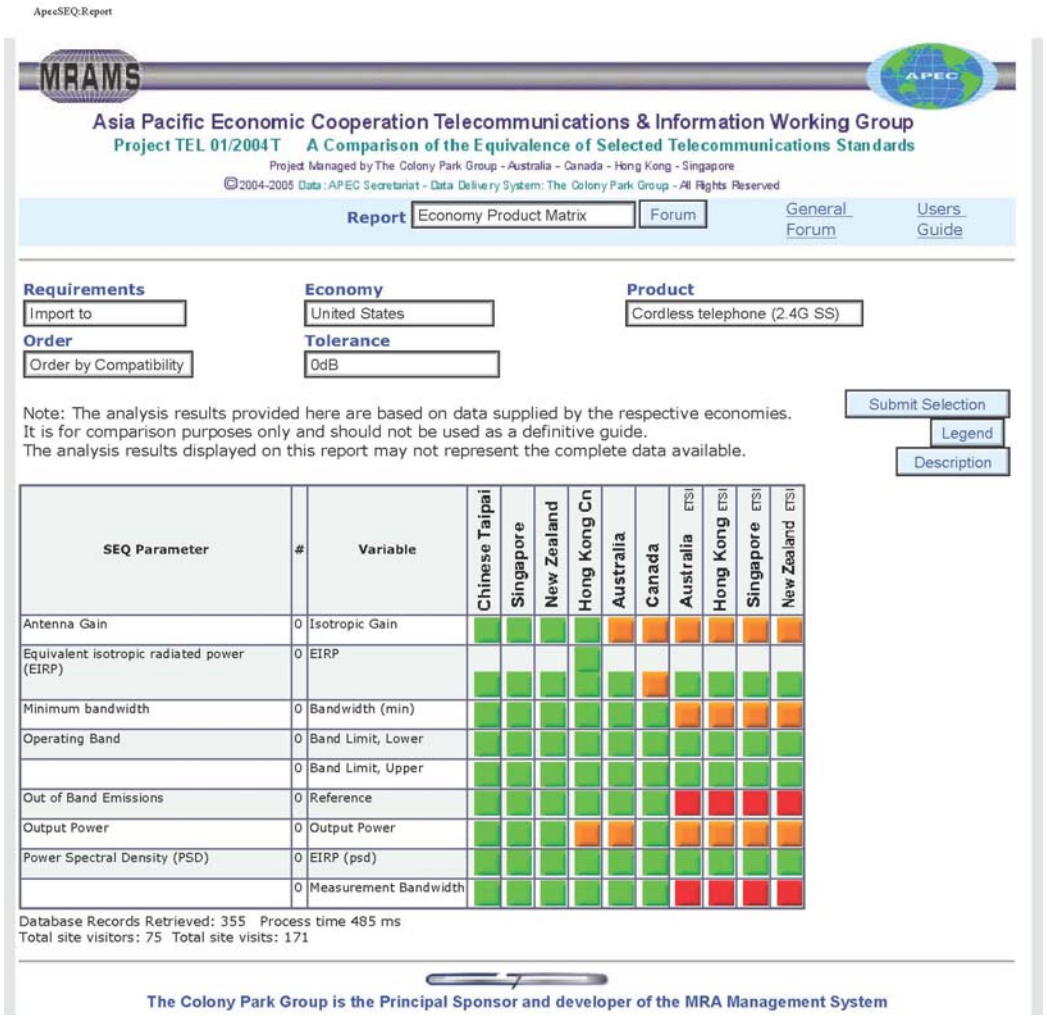
C.3.6 Import to United States

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.



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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: United States
Product: Cordless telephone (2.4G SS)
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Chinese Taipai	Singapore	New Zealand	Hong Kong Cn	Australia	Canada	Australia ETSI	Hong Kong ETSI	Singapore ETSI	New Zealand ETSI
Antenna Gain	0	Isotropic Gain										
Equivalent isotropic radiated power (EIRP)	0	EIRP										
Minimum bandwidth	0	Bandwidth (min)										
Operating Band	0	Band Limit, Lower										
	0	Band Limit, Upper										
Out of Band Emissions	0	Reference										
Output Power	0	Output Power										
Power Spectral Density (PSD)	0	EIRP (psd)										
	0	Measurement Bandwidth										

Database Records Retrieved: 355 Process time 485 ms
Total site visitors: 75 Total site visits: 171

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C.4 Cordless Telephone

C.4.1 Import to Australia

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: Australia
Product: Cordless Telephone
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Chinese Taipai	Hong Kong Cn	Singapore	United States	Canada	New Zealand
DTMF	0	duration (ms min)						
	0	HGP - LGP level (max)						
	0	HGP - LGP Level (min)						
	0	interdigital pause (ms min)						
	0	Level HGP (max)						
	0	Level HGP (min)						
	0	Level LGP (max)						
	0	Level LGP (min)						
	0	Rise time (ms max)						
DTMF Distortion	0	Level, relative (dB min)						
DTMF frequencies	0	tolerance (%)						
DTMF Return Loss	1	1 Level, relative (dB min)						
Insulation resistance, line to ground	0	Resistance M						
Insulation resistance, on hook, line to line	0	Resistance M						
Line polarity	0	independent						
Longitudinal Balance	1	1 Level, relative (dB min)						
On-hook DC current	2	2 Current (uA max)						
receive loudness ratings	0	Level, Relative (dB max)						
Return Loss	0	Reference impedance						

ApecSEQ:Report

	1	1 Level, relative (dB min)						
	2	2 Level, relative (dB min)						
Ring signal detection	1	1 Voltage (rms max)						
	1	1 Voltage (rms min)						
	2	2 Voltage (rms max)						
	2	2 Voltage (rms min)						

Database Records Retrieved: 568 Process time 986 ms
Total site visitors: 75 Total site visits: 171

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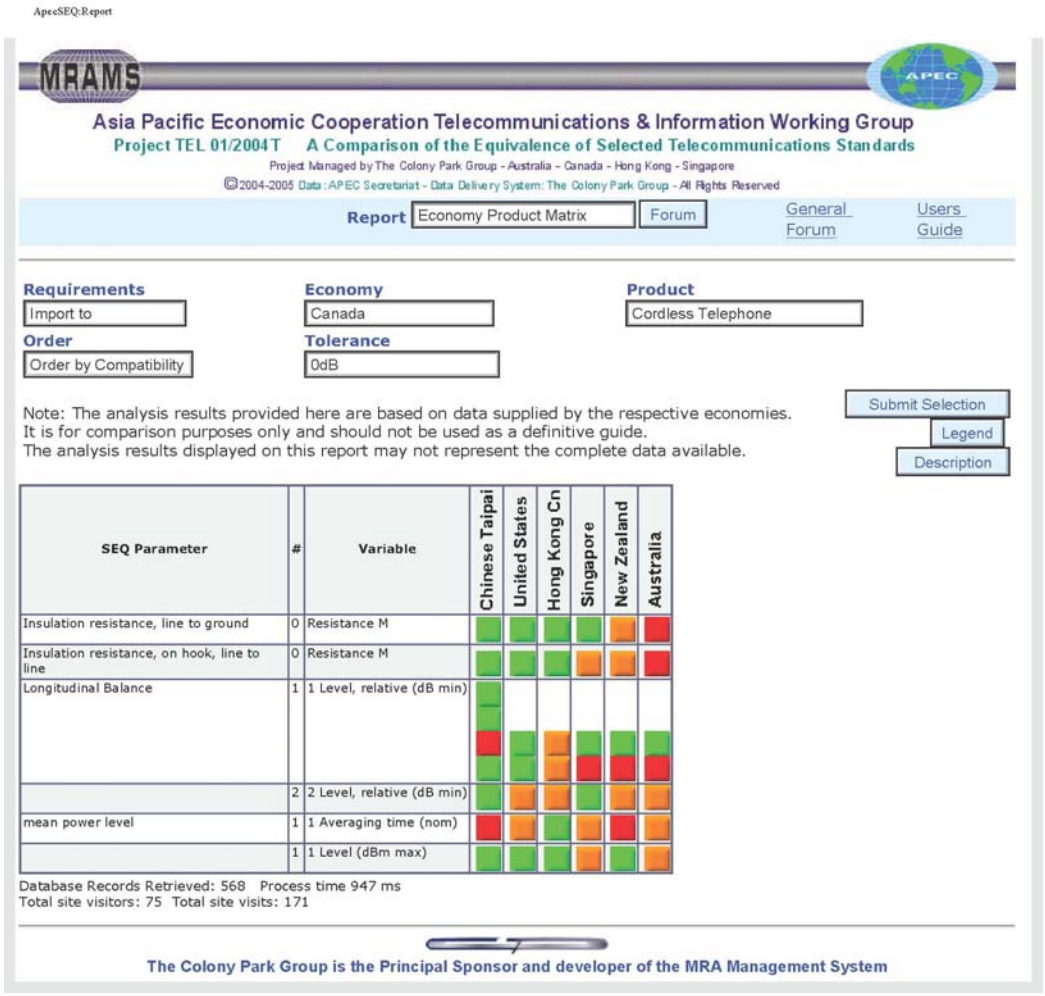
C.4.2 Import to Canada

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.



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Requirements: Import to | Economy: Canada | Product: Cordless Telephone

Order: Order by Compatibility | Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Chinese Taipai	United States	Hong Kong Cn	Singapore	New Zealand	Australia
Insulation resistance, line to ground	0	Resistance M						
Insulation resistance, on hook, line to line	0	Resistance M						
Longitudinal Balance	1	1 Level, relative (dB min)						
	2	2 Level, relative (dB min)						
mean power level	1	1 Averaging time (nom)						
	1	1 Level (dBm max)						

Database Records Retrieved: 568 Process time 947 ms
Total site visitors: 75 Total site visits: 171

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C.4.3 Import to Hong Kong - China

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Requirements: Import to
Economy: Hong Kong - China
Product: Cordless Telephone
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Chinese Taipai	Singapore	Australia	Canada	United States	New Zealand
DTMF	0	duration (ms min)						
	0	HGP - LGP level (max)						
	0	HGP - LGP Level (min)						
	0	interdigital pause (ms min)						
	0	Level HGP (min)						
	0	Level LGP (min)						
	0	Rise time (ms max)						
DTMF Distortion	1	1 Level (dBm max)						
DTMF frequencies	0	tolerance (%)						
Insulation resistance, line to ground	0	Resistance M						
Insulation resistance, on hook, line to line	0	Resistance M						
Line polarity	0	independent						
mean power level	1	1 Averaging time (nom)						
	1	1 Level (dBm max)						
On-hook DC current	0	Line Current (uA max)						
Ring signal detection	1	1 Voltage (rms max)						
	1	1 Voltage (rms min)						

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C.4.4 Import to New Zealand

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Requirements: Import to
Economy: New Zealand
Product: Cordless Telephone
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
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Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Australia	Singapore	Canada	Chinese Taipai	United States	Hong Kong Cn
DTMF Distortion	0	Level, relative (dB min)						
DTMF Return Loss	1	1 Level, relative (dB min)						
Longitudinal Balance	1	1 Level, relative (dB min)						
mean power level	1	1 Averaging time (nom)						
	1	1 Level (dBm max)						
On-hook DC current	0	Line Current (uA max)						
Power of signals greater than 3.4 KHz	1	1 Level (dBm max)						
Return Loss	0	Reference impedance						

Database Records Retrieved: 568 Process time 946 ms
Total site visitors: 75 Total site visits: 171

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C.4.5 Import to Singapore

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Requirements: Import to
Economy: Singapore
Product: Cordless Telephone
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Chinese Taipai	Australia	New Zealand	Canada	United States	Hong Kong Cn
DTMF	0	duration (ms min)						
	0	interdigital pause (ms min)						
	0	Level HGP (max)						
	0	Level HGP (min)						
	0	Level LGP (max)						
	0	Level LGP (min)						
DTMF Distortion	0	Level, relative (dB min)						
DTMF frequencies	0	tolerance (%)						
Insulation resistance, line to ground	0	Resistance M						
Line polarity	0	independent						
Longitudinal Balance	1	1 Level, relative (dB min)						
	2	2 Level, relative (dB min)						
Power of signals greater than 3.4 KHz	1	1 Level (dBm max)						
receive loudness ratings	1	1 Level, relative (dB max)						
Return Loss	0	Reference impedance						
	1	1 Level, relative (dB min)						
Ring signal detection	1	1 Voltage (rms max)						

Database Records Retrieved: 568 Process time 989 ms
Total site visitors: 75 Total site visits: 171

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Import to Chinese Taipei

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: Chinese Taipei
Product: Cordless Telephone
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Singapore	Australia	Hong Kong Cn	Canada	United States	New Zealand
DTMF	0	duration (ms min)						
	0	HGP - LGP level (max)						
	0	HGP - LGP Level (min)						
	0	interdigital pause (ms min)						
	0	Level HGP (max)						
	0	Level HGP (min)						
	0	Level LGP (max)						
	0	Level LGP (min)						
DTMF frequencies	0	tolerance (%)						
Insulation resistance, line to ground	0	Resistance M						
Insulation resistance, on hook, line to line	0	Resistance M						
Line polarity	0	independent						
Longitudinal Balance	1	1 Level, relative (dB min)						
	2	2 Level, relative (dB min)						
mean power level	1	1 Averaging time (nom)						
	1	1 Level (dBm max)						
receive loudness ratings	0	Level, Relative (dB max)						
Return Loss	1	1 Level, relative (dB min)						
	2	2 Level, relative (dB min)						

Database Records Retrieved: 568 Process time 996 ms
Total site visitors: 75 Total site visits: 171

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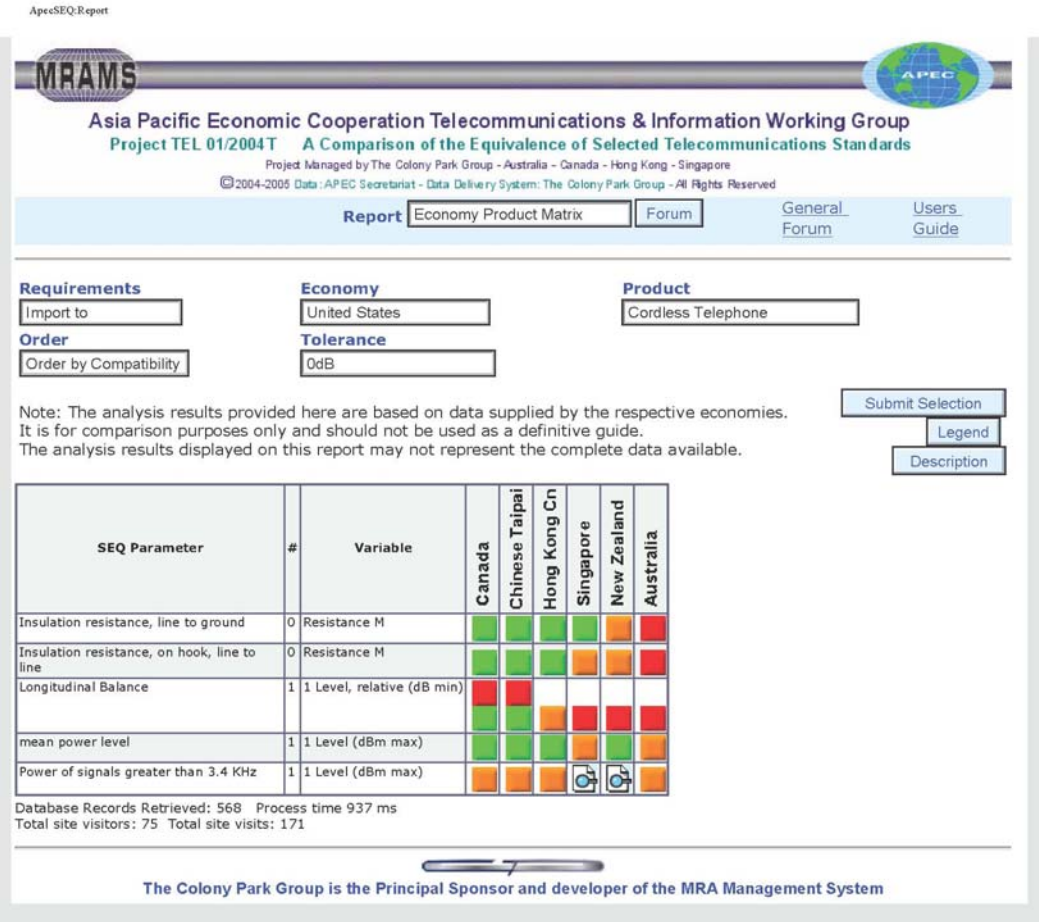
C.4.6 Import to United States

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.



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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: United States
Product: Cordless Telephone
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Canada	Chinese Taipai	Hong Kong Cn	Singapore	New Zealand	Australia
Insulation resistance, line to ground	0	Resistance M						
Insulation resistance, on hook, line to line	0	Resistance M						
Longitudinal Balance	1	1 Level, relative (dB min)						
mean power level	1	1 Level (dBm max)						
Power of signals greater than 3.4 KHz	1	1 Level (dBm max)						

Database Records Retrieved: 568 Process time 937 ms
Total site visitors: 75 Total site visits: 171

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C.5 PSTN Fax/Modem

Import to Australia

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Requirements: Import to
Economy: Australia
Product: PSTN Fax/Modem
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Chinese Taipai	Hong Kong Cn	Singapore	United States	Canada	New Zealand
DTMF	0	duration (ms min)	Red	Green	Green	Orange	Orange	Orange
	0	HGP - LGP level (max)	Green	Green	Orange	Orange	Orange	Orange
	0	HGP - LGP Level (min)	Green	Green	Orange	Orange	Orange	Orange
	0	interdigital pause (ms min)	Red	Red	Red	Orange	Orange	Orange
	0	Level HGP (max)	Red	Orange	Red	Orange	Orange	Orange
	0	Level HGP (min)	Green	Green	Green	Orange	Orange	Orange
	0	Level LGP (max)	Green	Orange	Green	Orange	Orange	Orange
	0	Level LGP (min)	Green	Green	Green	Orange	Orange	Orange
	0	Rise time (ms max)	Orange	Red	Orange	Orange	Orange	Orange
DTMF Distortion	0	Level, relative (dB min)	Orange	Orange	Green	Orange	Orange	Green
DTMF frequencies	0	tolerance (%)	Green	Green	Green	Orange	Orange	Orange
DTMF Return Loss	1	1 Level, relative (dB min)	Orange	Orange	Orange	Orange	Orange	Red
Insulation resistance, line to ground	0	Resistance M	Green	Green	Green	Green	Green	Orange
Insulation resistance, on hook, line to line	0	Resistance M	Green	Green	Orange	Green	Green	Orange
Line polarity	0	independent	Green	Green	Green	Orange	Orange	Orange
Longitudinal Balance	1	1 Level, relative (dB min)	Red	Orange	Red	Green	Red	Red
mean power level	1	1 Averaging time (nom)	Green	Orange	Orange	Orange	Red	Red
	1	1 Level (dBm max)	Green	Green	Orange	Red	Red	Red
On-hook DC current	2	2 Current (uA max)	Orange	Orange	Orange	Orange	Orange	Orange
Return Loss	0	Reference impedance	Orange	Orange	Orange	Orange	Orange	
	1	1 Level, relative (dB min)	Red	Orange	Red	Orange	Orange	Green
	2	2 Level, relative (dB min)	Red	Orange	Orange	Orange	Orange	Orange
Ring signal detection	1	1 Voltage (rms max)	Orange	Red	Green	Orange	Orange	Orange
	1	1 Voltage (rms min)	Red	Green	Orange	Orange	Orange	Orange
	2	2 Voltage (rms max)	Orange	Orange	Orange	Orange	Orange	Orange
	2	2 Voltage (rms min)	Orange	Orange	Orange	Orange	Orange	Orange

C.5.1 Import to Canada

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Requirements: Import to
Economy: Canada
Product: PSTN Fax/Modem
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Chinese Taipai	United States	Hong Kong Cn	Singapore	Australia	New Zealand
Insulation resistance, line to ground	0	Resistance M						
Insulation resistance, on hook, line to line	0	Resistance M						
Longitudinal Balance	1	1 Level, relative (dB min)						
	2	2 Level, relative (dB min)						
mean power level	1	1 Averaging time (nom)						
	1	1 Level (dBm max)						

Database Records Retrieved: 614 Process time 876 ms
Total site visitors: 75 Total site visits: 171

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C.5.2 Import to Hong Kong - China

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Requirements: Import to
Economy: Hong Kong - China
Product: PSTN Fax/Modem
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Australia	Chinese Taipai	Singapore	Canada	United States	New Zealand
DTMF	0	duration (ms min)						
	0	HGP - LGP level (max)						
	0	HGP - LGP Level (min)						
	0	interdigital pause (ms min)						
	0	Level HGP (min)						
	0	Level LGP (min)						
	0	Rise time (ms max)						
DTMF Distortion	1	1 Level (dBm max)						
DTMF frequencies	0	tolerance (%)						
Insulation resistance, line to ground	0	Resistance M						
Insulation resistance, on hook, line to line	0	Resistance M						
Line polarity	0	independent						
mean power level	1	1 Level (dBm max)						
On-hook DC current	0	Line Current (uA max)						
Ring signal detection	1	1 Voltage (rms max)						
	1	1 Voltage (rms min)						

Database Records Retrieved: 614 Process time 905 ms
Total site visitors: 75 Total site visits: 171

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C.5.3 Import to New Zealand

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Requirements: Import to
Economy: New Zealand
Product: PSTN Fax/Modem
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Australia	Canada	Hong Kong Cn	Chinese Taipai	United States	Singapore
DTMF Distortion	0	Level, relative (dB min)						
DTMF Return Loss	1	1 Level, relative (dB min)						
Longitudinal Balance	1	1 Level, relative (dB min)						
mean power level	1	1 Averaging time (nom)						
	1	1 Level (dBm max)						
On-hook DC current	0	Line Current (uA max)						
Power of signals greater than 3.4 KHz	1	1 Level (dBm max)						
Return Loss	0	Reference impedance						
	1	1 Level, relative (dB min)						

Database Records Retrieved: 614 Process time 866 ms
Total site visitors: 75 Total site visits: 171

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C.5.4 Import to Singapore

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Requirements: Import to
Economy: Singapore
Product: PSTN Fax/Modem
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Chinese Taipai	Australia	New Zealand	Canada	United States	Hong Kong Cn
DTMF	0	duration (ms min)						
	0	interdigital pause (ms min)						
	0	Level HGP (max)						
	0	Level HGP (min)						
	0	Level LGP (max)						
	0	Level LGP (min)						
DTMF Distortion	0	Level, relative (dB min)						
DTMF frequencies	0	tolerance (%)						
Insulation resistance, line to ground	0	Resistance M						
Line polarity	0	independent						
Longitudinal Balance	1	1 Level, relative (dB min)						
	2	2 Level, relative (dB min)						
Power of signals greater than 3.4 KHz	1	1 Level (dBm max)						
Return Loss	1	1 Level, relative (dB min)						
Ring signal detection	1	1 Voltage (rms max)						

Database Records Retrieved: 614 Process time 890 ms
Total site visitors: 75 Total site visits: 171

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C.5.5 Import to Chinese Taipei

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Requirements: Import to
Economy: Chinese Taipei
Product: PSTN Fax/Modem
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Singapore	Australia	Hong Kong Cn	Canada	United States	New Zealand
DTMF	0	duration (ms min)						
	0	HGP - LGP level (max)						
	0	HGP - LGP Level (min)						
	0	interdigital pause (ms min)						
	0	Level HGP (max)						
	0	Level HGP (min)						
	0	Level LGP (max)						
	0	Level LGP (min)						
DTMF frequencies	0	tolerance (%)						
Insulation resistance, line to ground	0	Resistance M						
Insulation resistance, on hook, line to line	0	Resistance M						
Line polarity	0	independent						
Longitudinal Balance	1	1 Level, relative (dB min)						
	2	2 Level, relative (dB min)						
mean power level	1	1 Averaging time (nom)						
	1	1 Level (dBm max)						
Return Loss	1	1 Level, relative (dB min)						
	2	2 Level, relative (dB min)						
Ring signal detection	1	1 Voltage (rms min)						

Database Records Retrieved: 614 Process time 918 ms
Total site visitors: 75 Total site visits: 171

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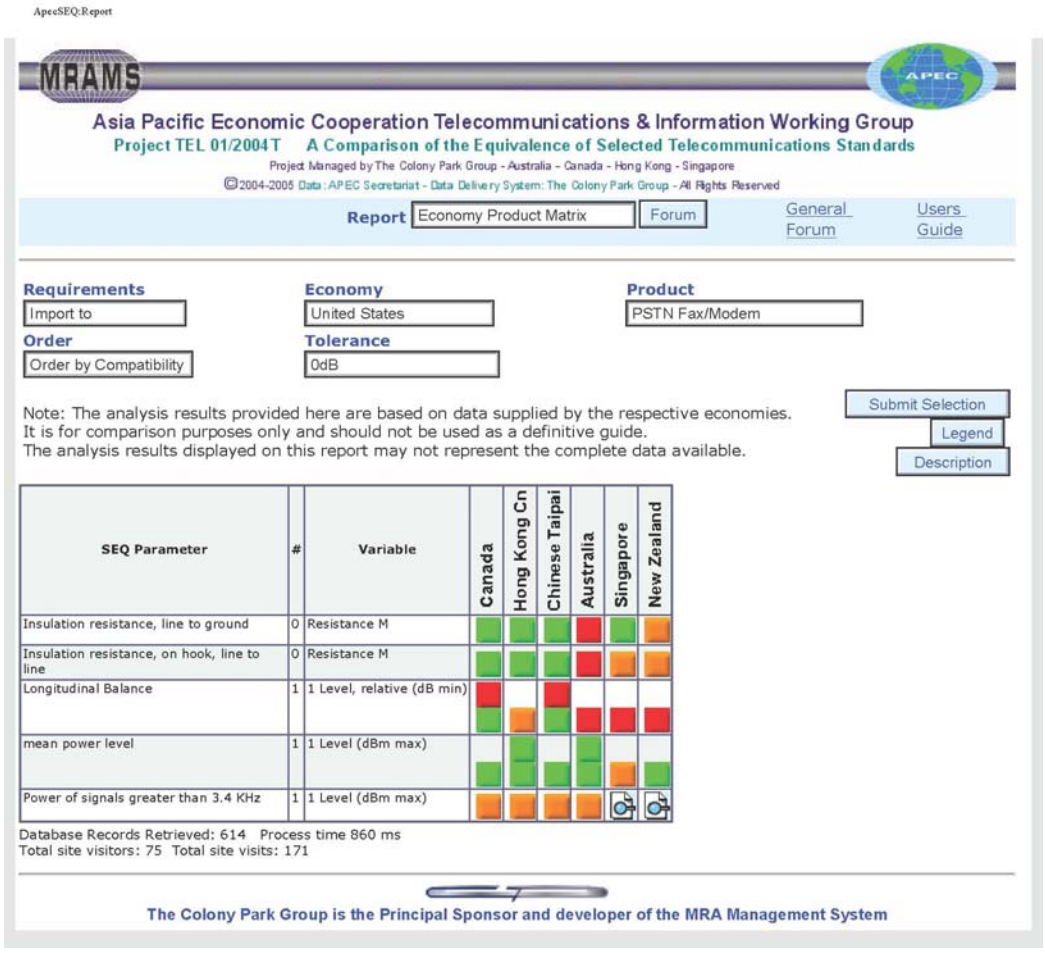
C.5.6 Import to United States

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.



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Requirements: Import to
Economy: United States
Product: PSTN Fax/Modem
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Canada	Hong Kong Cn	Chinese Taipai	Australia	Singapore	New Zealand
Insulation resistance, line to ground	0	Resistance M						
Insulation resistance, on hook, line to line	0	Resistance M						
Longitudinal Balance	1	1 Level, relative (dB min)						
mean power level	1	1 Level (dBm max)						
Power of signals greater than 3.4 KHz	1	1 Level (dBm max)						

Database Records Retrieved: 614 Process time 860 ms
Total site visitors: 75 Total site visits: 171

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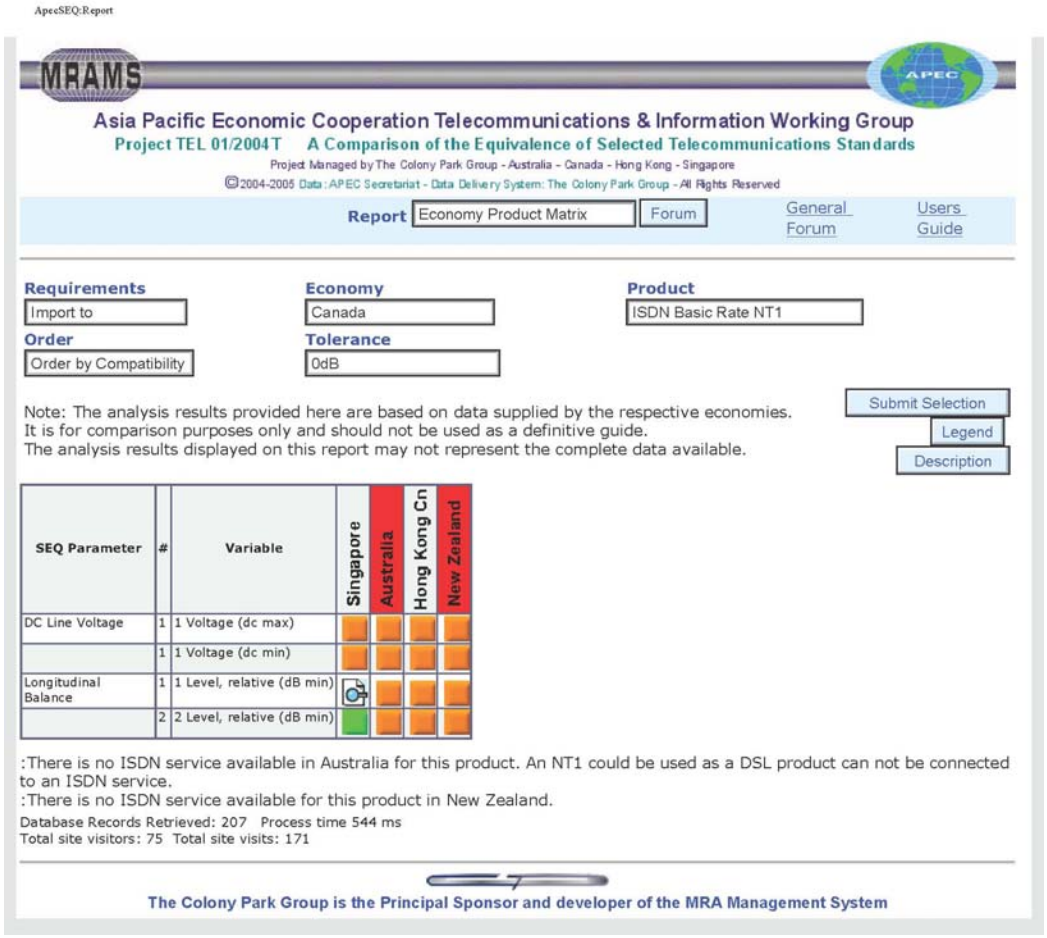
(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.



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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: Canada
Product: ISDN Basic Rate NT1
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Singapore	Australia	Hong Kong Cn	New Zealand
DC Line Voltage	1	1 Voltage (dc max)				
	1	1 Voltage (dc min)				
Longitudinal Balance	1	1 Level, relative (dB min)				
	2	2 Level, relative (dB min)				

:There is no ISDN service available in Australia for this product. An NT1 could be used as a DSL product can not be connected to an ISDN service.
:There is no ISDN service available for this product in New Zealand.

Database Records Retrieved: 207 Process time 544 ms
Total site visitors: 75 Total site visits: 171

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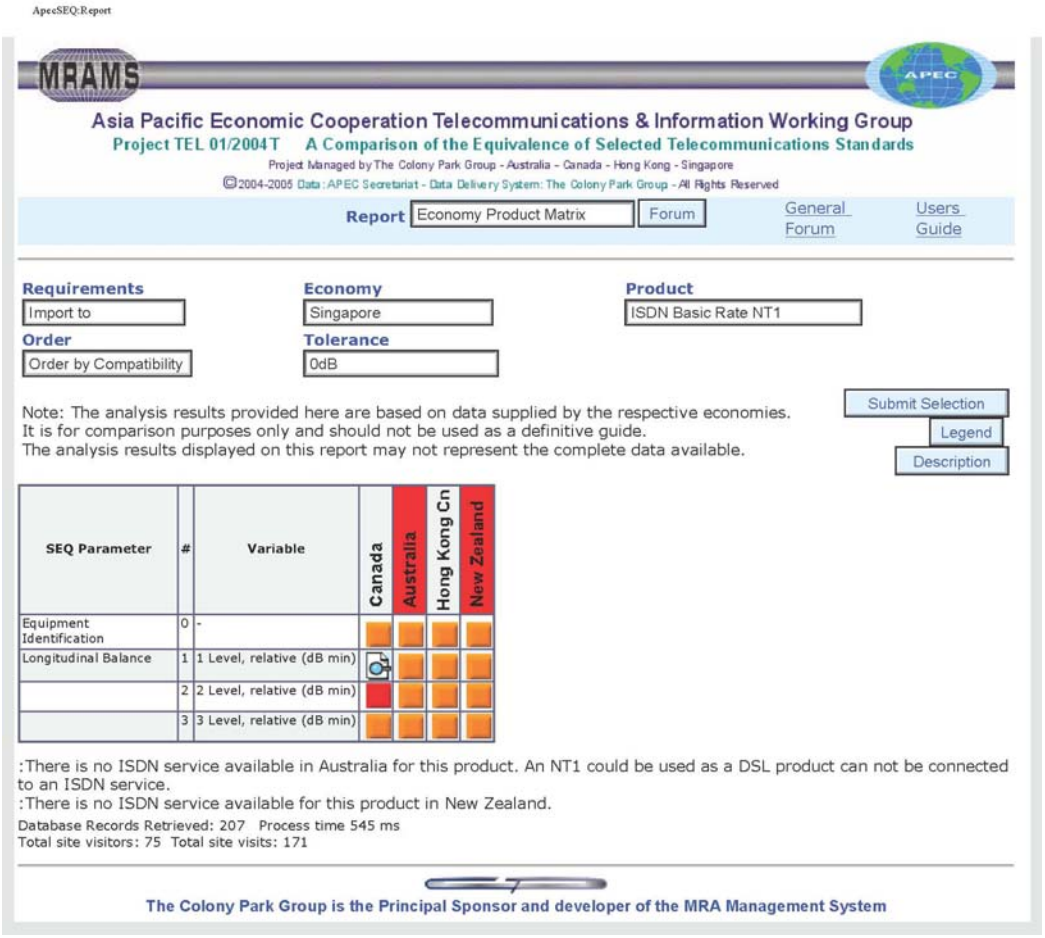
C.6 ISDN Basic Rate NT1

C.6.1 Import to Singapore

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.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Requirements: Import to
Economy: Singapore
Product: ISDN Basic Rate NT1
Order: Order by Compatibility
Tolerance: 0dB

Note: The analysis results provided here are based on data supplied by the respective economies.
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The analysis results displayed on this report may not represent the complete data available.

Submit Selection | Legend | Description

SEQ Parameter	#	Variable	Canada	Australia	Hong Kong Cn	New Zealand
Equipment Identification	0	-				
Longitudinal Balance	1	1 Level, relative (dB min)				
	2	2 Level, relative (dB min)				
	3	3 Level, relative (dB min)				

:There is no ISDN service available in Australia for this product. An NT1 could be used as a DSL product can not be connected to an ISDN service.
:There is no ISDN service available for this product in New Zealand.

Database Records Retrieved: 207 Process time 545 ms
Total site visitors: 75 Total site visits: 171

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C.7 Wireless LAN (2.4 GHz DS or DM)

C.7.1 Import to Australia

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Requirements: Import to
Economy: Australia
Product: Wireless LAN 2.4 GHz DS or DM
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Hong Kong Cn	Chinese Taipai	United States	Singapore	New Zealand	Canada	Australia ETSI	Hong Kong ETSI	Singapore ETSI	New Zealand ETSI
Equivalent isotropic radiated power (EIRP)	0	EIRP										
Minimum bandwidth	0	Bandwidth (min)										
Operating Band	0	Band Limit, Lower										
	0	Band Limit, Upper										
Out of Band Emissions	0	Reference										
Power Spectral Density (PSD)	0	EIRP (psd)										
	0	Measurement Bandwidth										
Processing Gain	0	Level, relative (dB min)										

Database Records Retrieved: 412 Process time 555 ms
Total site visitors: 75 Total site visits: 171

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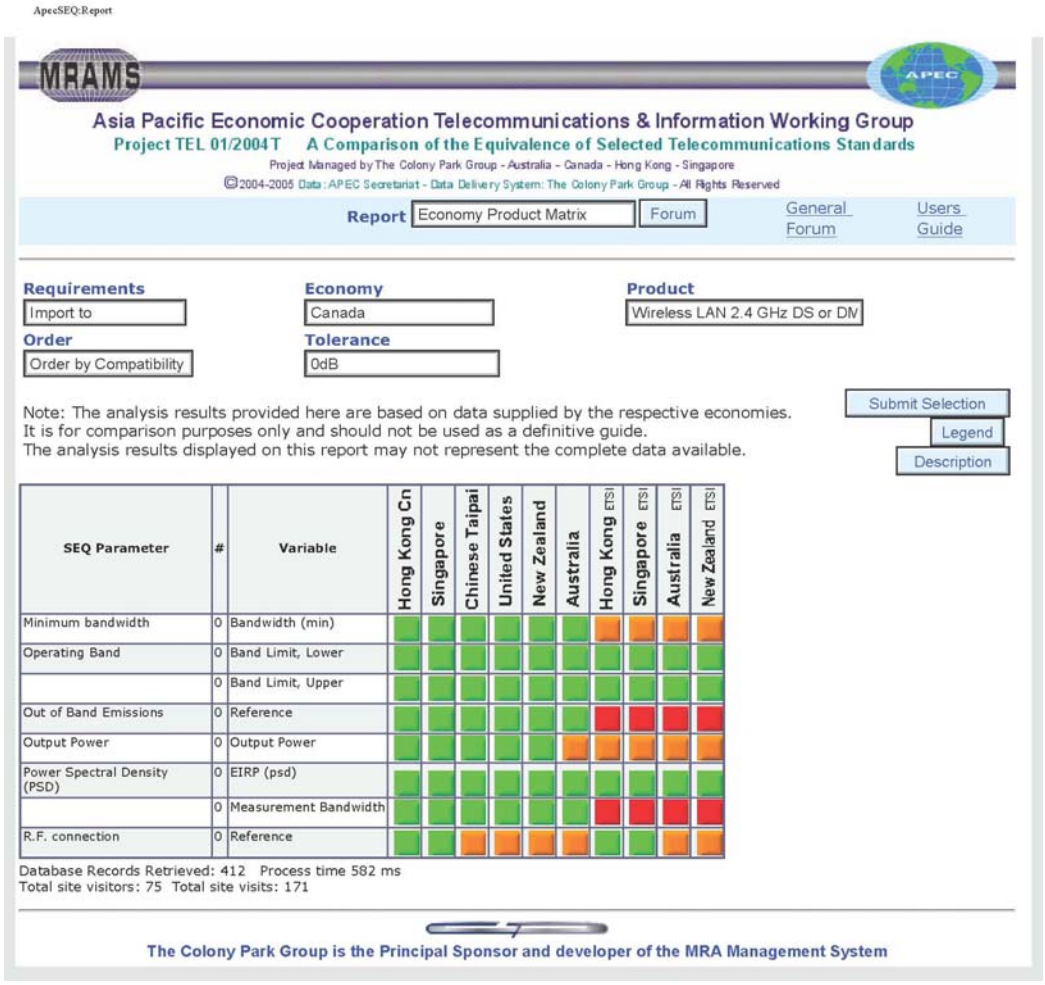
C.7.2 Import to Canada

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.



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Requirements: Import to
Economy: Canada
Product: Wireless LAN 2.4 GHz DS or DM
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Hong Kong Cn	Singapore	Chinese Taipai	United States	New Zealand	Australia	Hong Kong ETSI	Singapore ETSI	Australia ETSI	New Zealand ETSI
Minimum bandwidth	0	Bandwidth (min)										
Operating Band	0	Band Limit, Lower										
	0	Band Limit, Upper										
Out of Band Emissions	0	Reference										
Output Power	0	Output Power										
Power Spectral Density (PSD)	0	EIRP (psd)										
	0	Measurement Bandwidth										
R.F. connection	0	Reference										

Database Records Retrieved: 412 Process time 582 ms
Total site visitors: 75 Total site visits: 171

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C.7.3 Import to Hong Kong - China

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: Hong Kong - China
Product: Wireless LAN 2.4 GHz DS or DM
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Singapore	Chinese Taipai	United States	New Zealand	Canada	Australia	Singapore ETSI	Hong Kong ETSI	Australia ETSI	New Zealand ETSI
Antenna Gain	0	Isotropic Gain										
Controls	0	Reference										
Equivalent isotropic radiated power (EIRP)	0	EIRP										
Minimum bandwidth	0	Bandwidth (min)										
Operating Band	0	Band Limit, Lower										
	0	Band Limit, Upper										
Out of Band Emissions	0	Reference										
Output Power	0	Output Power										
Power Spectral Density (PSD)	0	EIRP (psd)										
	0	Measurement Bandwidth										
R.F. connection	0	Reference										

Database Records Retrieved: 412 Process time 588 ms
Total site visitors: 75 Total site visits: 171

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C.7.4 Import to New Zealand

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: New Zealand
Product: Wireless LAN 2.4 GHz DS or DM
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Hong Kong Cn	Chinese Taipai	United States	Singapore	Australia	Canada	Australia ETSI	Hong Kong ETSI	Singapore ETSI	New Zealand ETSI
Antenna Gain	0	Isotropic Gain										
Equivalent isotropic radiated power (EIRP)	0	EIRP										
Minimum bandwidth	0	Bandwidth (min)										
Operating Band	0	Band Limit, Lower										
	0	Band Limit, Upper										
Out of Band Emissions	0	Reference										
Output Power	0	Output Power										
Power Spectral Density (PSD)	0	EIRP (psd)										
	0	Measurement Bandwidth										

Database Records Retrieved: 412 Process time 563 ms
Total site visitors: 75 Total site visits: 171

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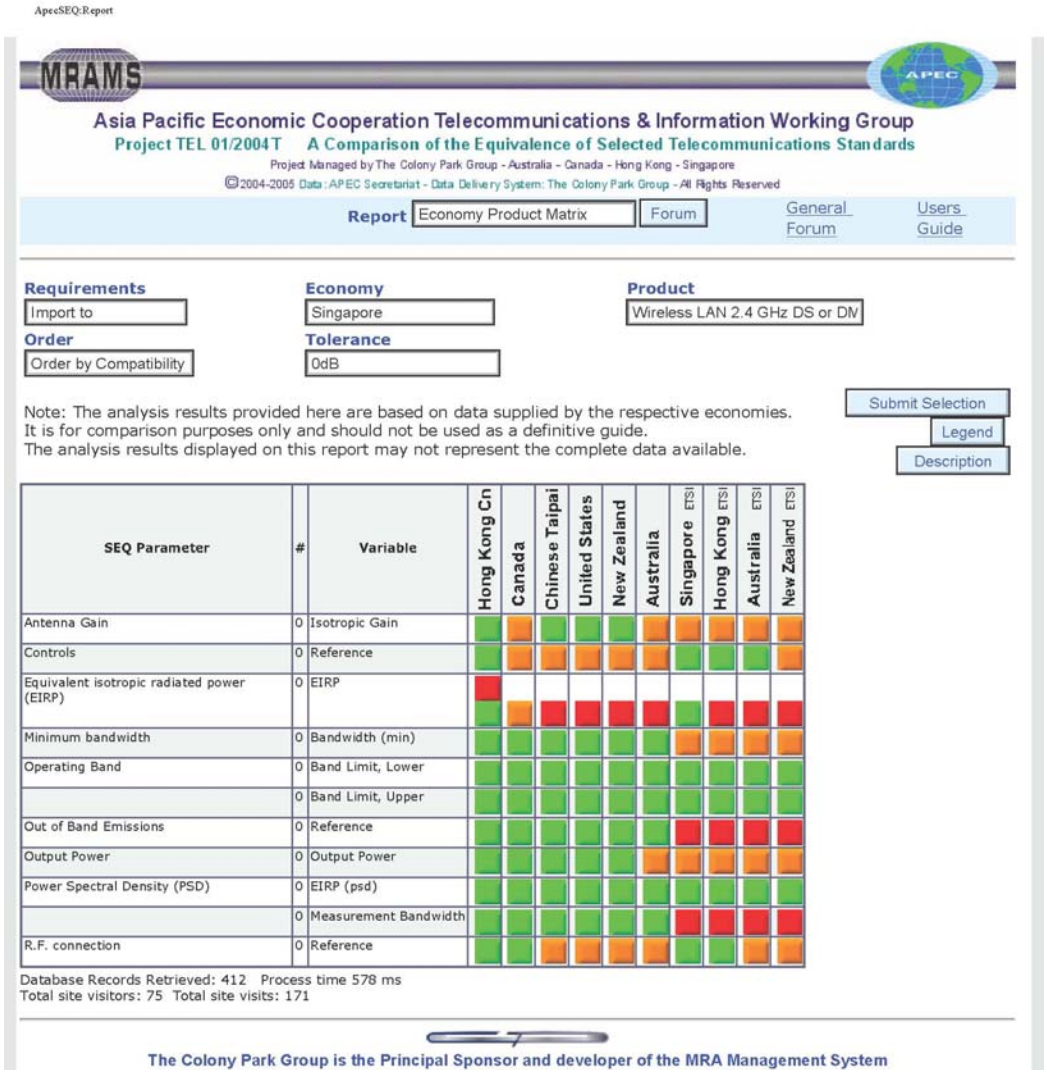
C.7.5 Import to Singapore

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.



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Requirements: Import to
Economy: Singapore
Product: Wireless LAN 2.4 GHz DS or DM
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Hong Kong Cn	Canada	Chinese Taipai	United States	New Zealand	Australia	Singapore ETSI	Hong Kong ETSI	Australia ETSI	New Zealand ETSI
Antenna Gain	0	Isotropic Gain										
Controls	0	Reference										
Equivalent isotropic radiated power (EIRP)	0	EIRP										
Minimum bandwidth	0	Bandwidth (min)										
Operating Band	0	Band Limit, Lower										
	0	Band Limit, Upper										
Out of Band Emissions	0	Reference										
Output Power	0	Output Power										
Power Spectral Density (PSD)	0	EIRP (psd)										
	0	Measurement Bandwidth										
R.F. connection	0	Reference										

Database Records Retrieved: 412 Process time 578 ms
Total site visitors: 75 Total site visits: 171

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C.7.6 Import to Chinese Taipei

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.

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Requirements: Import to
Economy: Chinese Taipei
Product: Wireless LAN 2.4 GHz DS or DM
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Hong Kong Cn	United States	Singapore	New Zealand	Australia	Canada	Australia ETSI	Hong Kong ETSI	Singapore ETSI	New Zealand ETSI
Antenna Gain	0	Isotropic Gain										
Equivalent isotropic radiated power (EIRP)	0	EIRP										
Minimum bandwidth	0	Bandwidth (min)										
Operating Band	0	Band Limit, Lower										
	0	Band Limit, Upper										
Out of Band Emissions	0	Reference										
Output Power	0	Output Power										
Power Spectral Density (PSD)	0	EIRP (psd)										
	0	Measurement Bandwidth										

Database Records Retrieved: 412 Process time 566 ms
Total site visitors: 75 Total site visits: 171

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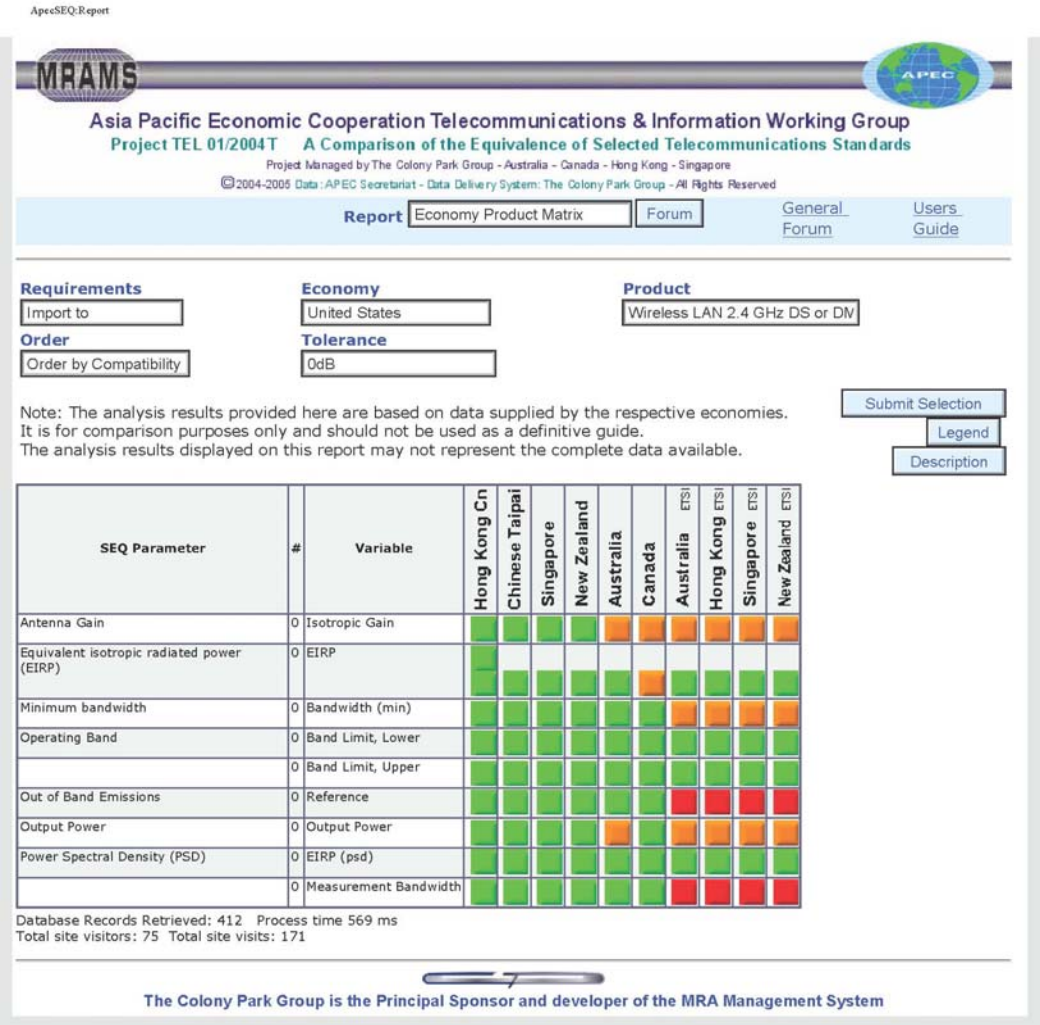
C.7.7 Import to United States

(Green) The requirements are compatible. These technical regulations are equivalent.
(Orange) The Selected Economy has requirements that the Column Economy does not.
(Red) The requirements are incompatible.



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Report: Economy Product Matrix | Forum | General Forum | Users Guide

Requirements: Import to
Economy: United States
Product: Wireless LAN 2.4 GHz DS or DM
Order: Order by Compatibility
Tolerance: 0dB

Submit Selection | Legend | Description

Note: The analysis results provided here are based on data supplied by the respective economies.
It is for comparison purposes only and should not be used as a definitive guide.
The analysis results displayed on this report may not represent the complete data available.

SEQ Parameter	#	Variable	Hong Kong Cn	Chinese Taipai	Singapore	New Zealand	Australia	Canada	Australia ETSI	Hong Kong ETSI	Singapore ETSI	New Zealand ETSI
Antenna Gain	0	Isotropic Gain										
Equivalent isotropic radiated power (EIRP)	0	EIRP										
Minimum bandwidth	0	Bandwidth (min)										
Operating Band	0	Band Limit, Lower										
	0	Band Limit, Upper										
Out of Band Emissions	0	Reference										
Output Power	0	Output Power										
Power Spectral Density (PSD)	0	EIRP (psd)										
	0	Measurement Bandwidth										

Database Records Retrieved: 412 Process time 569 ms
Total site visitors: 75 Total site visits: 171

The Colony Park Group is the Principal Sponsor and developer of the MRA Management System

Appendix D: MRAMS-SEq Lexicon Example

The **Lexicon** shows the relationship between the **SEQ Parameters** and **Economy Parameters.** The **SEQ Parameter** is a standardised name used to relate the **Economy Parameters** of different **Economies**, which may differ in name but have the same, or very similar technical specifications, but not necessarily value(s).

The **Lexicon** can be displayed;

- on an **Economy** basis or
- as a comparison between **Economies**

The display can be filtered for a specific **Product**.

The **Lexicon** also displays the **Document** where the **Economy Parameter** was found and a **Description** of the **Economy Parameter**. The **Description** is either a definition provided in the **Document**, or as many documents do not explicitly define the parameters, the clause, or part there of, where the **Economy Parameter** is used.

The F button provides a link to allow posting on the SEQ forums. The information on the row containing the button will be included in the post.

The example below shows all terms for Australia compared to Canada and also lists the Standards Equivalence Parameter name.

SEQ Parameter	Economy	Economy Parameter	Product	Document	Revision	Description
Absolute Group Delay	Australia	Absolute group delay	ADSL (low pass) Line Filters	AS/ACIF S003	2001	
ADSL band bridging loss	Australia	High Frequency impedance loading	ADSL (low pass) Line Filters	AS/ACIF S002	Amendment 2/2004	
Attenuation	Australia	Loss	ADSL (low pass) Line Filters	AS/ACIF S002	Amendment 2/2004	
Automatic answer	Australia	Automatic answer	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	Automatic answer	Test Product	AS/ACIF S002	Amendment 2/2004	
AUTOMATIC DIALING	Australia	AUTOMATIC DIALING	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Canada	AUTOMATIC DIALING	Cordless Telephone	CS-03, Part 1	Issue 8	
	Australia	AUTOMATIC DIALING	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Canada	AUTOMATIC DIALING	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
	Australia	AUTOMATIC DIALING	Test Product	AS/ACIF S002	Amendment 2/2004	
DC continuity	Australia	DC continuity	ADSL (low pass) Line Filters	AS/ACIF S002	Amendment 2/2004	
DC current range	Australia	DC current range	ADSL (low pass) Line Filters	AS/ACIF S002	Amendment 2/2004	
DC drop	Australia	DC drop	ADSL (low pass) Line Filters	AS/ACIF S002	Amendment 2/2004	
DC Line Voltage	Canada	DC Line Voltage	ISDN Basic Rate NT1	CS-03, PartVI	Issue 9, November 2004	
DC Resistance	Australia	DC Resistance	ADSL (low pass) Line Filters	AS/ACIF S002	Amendment 2/2004	

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SEQ Parameter	Economy	Economy Parameter	Product	Document	Revision	Description
Dielectric Strength	Canada	Dielectric Strength	ADSL (low pass) Line Filters	CS-03, Part 1	Issue 8	
	Canada	Dielectric Strength	Cordless Telephone	CS-03, Part 1	Issue 8	
	Canada	Dielectric Strength	IP telephone	CS-03, Part 1	Issue 8	
	Canada	Dielectric Strength	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
DTMF	Australia	DTMF	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	A system for transmitting address and other information using dual tone
	Canada	DTMF	Cordless Telephone	CS-03, Part 1	Issue 8	
	Australia	DTMF	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	A system for transmitting address and other information using dual tone
	Canada	DTMF	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
	Australia	DTMF	Test Product	AS/ACIF S002	Amendment 2/2004	A system for transmitting address and other information using dual tone
DTMF Distortion	Australia	DTMF Distortion	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	DTMF Distortion	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	DTMF Distortion	Test Product	AS/ACIF S002	Amendment 2/2004	
DTMF frequencies	Australia	DTMF frequencies	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	DTMF frequencies	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	DTMF frequencies	Test Product	AS/ACIF S002	Amendment 2/2004	
DTMF Return Loss	Australia	DTMF return loss	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	DTMF return loss	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	DTMF return loss	Test Product	AS/ACIF S002	Amendment 2/2004	
Electrical and Mechanical Stress	Canada	Electrical and Mechanical Stress	Cordless Telephone	CS-03, Part 1	Issue 8	
	Canada	Electrical and Mechanical Stress	IP telephone	CS-03, Part 1	Issue 8	
	Canada	Electrical and Mechanical Stress	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
EMC	Australia	EMC	ADSL (low pass) Line Filters	AU/Radiocommunications (Electromagnetic Compatibility) Standard 2001	2001	

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SEQ Parameter	Economy	Economy Parameter	Product	Document	Revision	Description
	Canada	EMC	ADSL MODEM (G.992.1)	ICES-003	Issue 4 February 2004	
	Australia	EMC	ADSL MODEM (G.992.2)	AU/Radiocommunications (Electromagnetic Compatibility) Standard 2001	2001	
	Canada	EMC	ADSL MODEM (G.992.2)	ICES-003	Issue 4 February 2004	
	Australia	EMC	Cordless Telephone	AU/Radiocommunications (Electromagnetic Compatibility) Standard 2001	2001	
	Australia	EMC	PSTN Fax/Modem	AU/Radiocommunications (Electromagnetic Compatibility) Standard 2001	2001	
Emergency Services	Australia	Emergency services	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	Emergency services	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	Emergency services	Test Product	AS/ACIF S002	Amendment 2/2004	
Equivalent isotropic radiated power (EIRP)	Australia	Equivalent isotropic radiated power	Cordless telephone (2.4G SS)	AU/Radiocommunications (Spread Spectrum Devices) Class Licence 2002	11-Dec-02	
	Canada	Equivalent isotropic radiated power	Wireless LAN 5.8 GHz DS or DM	RSS-210	Issue 5 November 2001	
Fail-safe operation	Australia	Fail-safe operation	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	See Note 1 below
	Australia	Fail-safe operation	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	See Note 1 below
	Australia	Fail-safe operation	Test Product	AS/ACIF S002	Amendment 2/2004	See Note 1 below
Group Delay Distortion	Australia	Group Delay Distortion	ADSL (low pass) Line Filters	AS/ACIF S003	2001	
Impedance	Australia	Impedance	ADSL MODEM (G.992.2)	AS/ACIF S002	Amendment 2/2004	
Insertion loss	Australia	Insertion Loss	ADSL (low pass) Line Filters	AS/ACIF S002	Amendment 2/2004	
	Canada	Through Transmission	ADSL (low pass) Line Filters	CS-03, Part 1	Issue 8	
insertion loss at 300Hz	Australia	insertion loss at 300Hz	ADSL (low pass) Line Filters	AS/ACIF S002	Amendment 2/2004	
insertion loss at 3400Hz	Australia	insertion loss at 3400Hz	ADSL (low pass) Line Filters	AS/ACIF S002	Amendment 2/2004	
Insulation resistance, line to ground	Australia	Insulation resistance, line to ground	ADSL (low pass) Line Filters	AS/ACIF S002	Amendment 2/2004	
	Canada	Insulation resistance, line to ground	ADSL (low pass) Line Filters	CS-03, Part 1	Issue 8	

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SEQ Parameter	Economy	Economy Parameter	Product	Document	Revision	Description
	Australia	Insulation resistance, line to ground	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Canada	Insulation resistance, line to ground	Cordless Telephone	CS-03, Part 1	Issue 8	
	Canada	Insulation resistance, line to ground	IP telephone	CS-03, Part 1	Issue 8	
	Australia	Insulation resistance, line to ground	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Canada	Insulation resistance, line to ground	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
	Australia	Insulation resistance, line to ground	Test Product	AS/ACIF S002	Amendment 2/2004	
Insulation resistance, on hook, line to line	Australia	Insulation resistance, off line, line to line	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	Insulation resistance, off line, line to line	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	Insulation resistance, off line, line to line	Test Product	AS/ACIF S002	Amendment 2/2004	
	Australia	Insulation resistance, on hook, line to line	ADSL (low pass) Line Filters	AS/ACIF S002	Amendment 2/2004	
	Canada	Insulation resistance, on hook, line to line	ADSL (low pass) Line Filters	CS-03, Part 1	Issue 8	
	Canada	Insulation resistance, on hook, line to line	Cordless Telephone	CS-03, Part 1	Issue 8	
	Canada	Insulation resistance, on hook, line to line	IP telephone	CS-03, Part 1	Issue 8	
	Canada	Insulation resistance, on hook, line to line	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
	Canada	ON hook resistance	ADSL (low pass) Line Filters	CS-03, Part 1	Issue 8	
	Canada	ON hook resistance	Cordless Telephone	CS-03, Part 1	Issue 8	
	Canada	ON hook resistance	IP telephone	CS-03, Part 1	Issue 8	
	Canada	ON hook resistance	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
Interference	Australia	Interference	Cordless telephone (2.4G SS)	AU/Radiocommunications (Spread Spectrum Devices) Class Licence 2002	11-Dec-02	
	Australia	Interference	Wireless LAN 2.4 GHz DS or DM	AU/Radiocommunications (Spread Spectrum Devices) Class Licence 2002	11-Dec-02	
Keypad	Australia	Keypad	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	Keypad	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	Keypad	Test Product	AS/ACIF S002	Amendment 2/2004	
Line connection	Canada	Line connection	ADSL MODEM (G.992.1)	CS-03 Part VIII	Issue 8, Amendment 7	

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SEQ Parameter	Economy	Economy Parameter	Product	Document	Revision	Description
	Canada	Line connection	ADSL MODEM (G.992.2)	CS-03 Part VIII	Issue 8, Amendment 7	
Line polarity	Australia	Line polarity	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	Line polarity	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	Line polarity	Test Product	AS/ACIF S002	Amendment 2/2004	
Longitudinal Balance	Australia	Impedance balance	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	Impedance balance	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	Impedance balance	Test Product	AS/ACIF S002	Amendment 2/2004	
	Australia	Longitudinal Balance	ADSL MODEM (G.992.2)	G.992.1	Jun-99	
	Canada	Transverse Balance	ADSL (low pass) Line Filters	CS-03, Part 1	Issue 8	
	Canada	Transverse Balance	Cordless Telephone	CS-03, Part 1	Issue 8	
	Canada	Transverse Balance	IP telephone	CS-03, Part 1	Issue 8	
	Canada	Transverse Balance	ISDN Basic Rate NT1	CS-03, PartVI	Issue 9, November 2004	
	Canada	Transverse Balance	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
	Canada	Transverse balance on hook	ADSL (low pass) Line Filters	CS-03, Part 1	Issue 8	
	Canada	Transverse balance on hook	Cordless Telephone	CS-03, Part 1	Issue 8	
	Canada	Transverse balance on hook	IP telephone	CS-03, Part 1	Issue 8	
	Canada	Transverse balance on hook	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
	Canada	Transverse balance, off hook	ADSL (low pass) Line Filters	CS-03, Part 1	Issue 8	
	Canada	Transverse balance, off hook	Cordless Telephone	CS-03, Part 1	Issue 8	
	Canada	Transverse balance, off hook	IP telephone	CS-03, Part 1	Issue 8	
	Canada	Transverse balance, off hook	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
	Canada	Transverse Ballance	ADSL MODEM (G.992.2)	CS-03 Part VIII	Issue 8, Amendment 7	
Longitudinal Output Voltage	Canada	Longitudinal Output Voltage	ADSL (low pass) Line Filters	CS-03, Part 1	Issue 8	
	Australia	Longitudinal Output Voltage	ADSL MODEM (G.992.2)	AS/ACIF S043.2	2003	
	Canada	Longitudinal Output Voltage	ADSL MODEM (G.992.2)	CS-03 Part VIII	Issue 8, Amendment 7	
	Canada	Longitudinal Output Voltage	Cordless Telephone	CS-03, Part 1	Issue 8	
	Canada	Longitudinal Output Voltage	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
mean power level	Australia	mean power level	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	

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SEQ Parameter	Economy	Economy Parameter	Product	Document	Revision	Description
	Australia	mean power level	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	mean power level	Test Product	AS/ACIF S002	Amendment 2/2004	
	Canada	Power	ADSL (low pass) Line Filters	CS-03, Part 1	Issue 8	
	Australia	Power	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Canada	Power	Cordless Telephone	CS-03, Part 1	Issue 8	
	Australia	Power	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Canada	Power	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
	Australia	Power	Test Product	AS/ACIF S002	Amendment 2/2004	
Mechanical Shock	Canada	Mechanical Shock	ADSL (low pass) Line Filters	CS-03, Part 1	Issue 8	
	Canada	Mechanical Shock	Cordless Telephone	CS-03, Part 1	Issue 8	
	Canada	Mechanical Shock	IP telephone	CS-03, Part 1	Issue 8	
	Canada	Mechanical Shock	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
Metalic Termination	Australia	termination impedance	ADSL MODEM (G.992.2)	AS/ACIF S043.2	2003	
	Canada	termination impedance	ADSL MODEM (G.992.2)	CS-03 Part VIII	Issue 8, Amendment 7	
Metallic Voltage Surge	Canada	Metalic voltage surge	ADSL (low pass) Line Filters	CS-03, Part 1	Issue 8	
	Canada	Metalic voltage surge	Cordless Telephone	CS-03, Part 1	Issue 8	
	Canada	Metalic voltage surge	IP telephone	CS-03, Part 1	Issue 8	
	Canada	Metalic voltage surge	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
Minimum bandwidth	Australia	Minimum bandwidth	Cordless telephone (2.4G SS)	US/47CFR15 .247	65 FR 57561, Sept. 25, 2000	
	Canada	Minimum bandwidth	Cordless telephone (2.4G SS)	RSS-210	RSS-210 Issue 5: Amendment	
	Australia	Minimum bandwidth	Wireless LAN 2.4 GHz DS or DM	US/47CFR15 .247	65 FR 57561, Sept. 25, 2000	
	Canada	Minimum bandwidth	Wireless LAN 2.4 GHz DS or DM	RSS-210	RSS-210 Issue 5: Amendment	
Noise power	Australia	Noise power	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	Noise power	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	Noise power	Test Product	AS/ACIF S002	Amendment 2/2004	
Off-hook	Australia	Hold state	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	Hold state	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	Hold state	Test Product	AS/ACIF S002	Amendment 2/2004	
On-hook	Canada	On hook	ADSL (low pass) Line Filters	CS-03, Part 1	Issue 8	
	Canada	On hook	Cordless Telephone	CS-03, Part 1	Issue 8	

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SEQ Parameter	Economy	Economy Parameter	Product	Document	Revision	Description
	Canada	On hook	IP telephone	CS-03, Part 1	Issue 8	
	Canada	On hook	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
On-hook DC current	Australia	Off-line DC current	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	Off-line DC current	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	Off-line DC current	Test Product	AS/ACIF S002	Amendment 2/2004	
Operating Band	Australia	Operating Band	Cordless telephone (2.4G SS)	US/47CFR15 .247	65 FR 57561, Sept. 25, 2000	
	Canada	Operating Band	Cordless telephone (2.4G SS)	RSS-210	RSS-210 Issue 5: Amendment	
	Australia	Operating Band	Wireless LAN 2.4 GHz DS or DM	US/47CFR15 .247	65 FR 57561, Sept. 25, 2000	
	Canada	Operating Band	Wireless LAN 2.4 GHz DS or DM	RSS-210	RSS-210 Issue 5: Amendment	
	Canada	Operating Band	Wireless LAN 5.8 GHz DS or DM	RSS-210	Issue 5 November 2001	
Out of Band Emissions	Australia	Out of Band Emissions	Cordless telephone (2.4G SS)	US/47CFR15 .247	65 FR 57561, Sept. 25, 2000	
	Canada	Out of Band Emissions	Cordless telephone (2.4G SS)	RSS-210	Issue 5 November 2001	
	Australia	Out of Band Emissions	Wireless LAN 2.4 GHz DS or DM	US/47CFR15 .247	65 FR 57561, Sept. 25, 2000	
	Canada	Out of Band Emissions	Wireless LAN 2.4 GHz DS or DM	RSS-210	Issue 5 November 2001	
	Canada	Out of Band Emissions	Wireless LAN 5.8 GHz DS or DM	RSS-210	Issue 5 November 2001	
OUT-OF-BAND TRANSMITTED SIGNAL POWER	Canada	OUT-OF-BAND TRANSMITTED SIGNAL POWER	ADSL (low pass) Line Filters	CS-03, Part 1	Issue 8	
	Canada	OUT-OF-BAND TRANSMITTED SIGNAL POWER	Cordless Telephone	CS-03, Part 1	Issue 8	
	Canada	OUT-OF-BAND TRANSMITTED SIGNAL POWER	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
Output Power	Canada	Output Power	Cordless telephone (2.4G SS)	RSS-210	RSS-210 Issue 5: Amendment	
	Canada	Output Power	Wireless LAN 2.4 GHz DS or DM	RSS-210	RSS-210 Issue 5: Amendment	
	Canada	Output Power	Wireless LAN 5.8 GHz DS or DM	RSS-210	Issue 5 November 2001	
Power Line Surge	Canada	Power Line Surge	Cordless Telephone	CS-03, Part 1	Issue 8	
	Canada	Power Line Surge	IP telephone	CS-03, Part 1	Issue 8	
	Canada	Power Line Surge	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
Power Spectral Density (PSD)	Canada	Power Spectral Density (PSD)	ADSL MODEM (G.992.1)	CS-03 Part VIII	Issue 8, Amendment 7	
	Australia	Power Spectral Density (PSD)	ADSL MODEM (G.992.2)	AS/ACIF S043.2	2003	
	Canada	Power Spectral Density (PSD)	ADSL MODEM (G.992.2)	CS-03 Part VIII	Issue 8, Amendment 7	

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SEQ Parameter	Economy	Economy Parameter	Product	Document	Revision	Description
	Australia	Power Spectral Density (PSD)	Cordless telephone (2.4G SS)	US/47CFR15 .247	65 FR 57561, Sept. 25, 2000	
	Canada	Power Spectral Density (PSD)	Cordless telephone (2.4G SS)	RSS-210	Issue 5 November 2001	
	Canada	Power Spectral Density (PSD)	Cordless telephone (2.4G SS)	RSS-210	RSS-210 Issue 5: Amendment	
	Australia	Power Spectral Density (PSD)	Wireless LAN 2.4 GHz DS or DM	US/47CFR15 .247	65 FR 57561, Sept. 25, 2000	
	Canada	Power Spectral Density (PSD)	Wireless LAN 2.4 GHz DS or DM	RSS-210	Issue 5 November 2001	
	Canada	Power Spectral Density (PSD)	Wireless LAN 2.4 GHz DS or DM	RSS-210	RSS-210 Issue 5: Amendment	
	Canada	Power Spectral Density (PSD)	Wireless LAN 5.8 GHz DS or DM	RSS-210	Issue 5 November 2001	
Processing Gain	Australia	Processing Gain	Cordless telephone (2.4G SS)	US/47CFR15 .247	65 FR 57561, Sept. 25, 2000	
	Australia	Processing Gain	Wireless LAN 2.4 GHz DS or DM	US/47CFR15 .247	65 FR 57561, Sept. 25, 2000	
PSD Maximum	Australia	PSD Maximum	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	PSD Maximum	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	PSD Maximum	Test Product	AS/ACIF S002	Amendment 2/2004	
R.F. connection	Canada	R.F. connection	Cordless telephone (2.4G SS)	RSS-210	Issue 5 November 2001	
	Canada	R.F. connection	Wireless LAN 2.4 GHz DS or DM	RSS-210	Issue 5 November 2001	
	Canada	R.F. connection	Wireless LAN 5.8 GHz DS or DM	RSS-210	Issue 5 November 2001	
Recall signal	Australia	Recall signal	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	Recall signal	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	Recall signal	Test Product	AS/ACIF S002	Amendment 2/2004	
receive loudness ratings	Australia	Receive Loudness Rating	Cordless Telephone	AS/ACIF S004	2004	
	Australia	Receive Loudness Rating	Test Product	AS/ACIF S004	2004	
Reference	Australia	Reference	ADSL (low pass) Line Filters	AS/ACIF S002	Amendment 2/2004	
	Australia	Reference	ADSL (low pass) Line Filters	AS/ACIF S003	2001	
	Canada	Reference	ADSL MODEM (G.992.1)	CS-03 Part VIII	Issue 8, Amendment 7	
	Australia	Reference	ADSL MODEM (G.992.2)	AS/ACIF S043.2	2003	

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SEQ Parameter	Economy	Economy Parameter	Product	Document	Revision	Description
	Australia	Reference	ADSL MODEM (G.992.2)	AU/Telecommunications Labelling (Customer Equipment and Customer Cabling) Notice 2001	20-Dec-04	
	Canada	Reference	ADSL MODEM (G.992.2)	CS-03 Part VIII	Issue 8, Amendment 7	
	Australia	Reference	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Canada	Reference	ISDN Basic Rate NT1	CS-03, PartVI	Issue 9, November 2004	
	Australia	Reference	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	Reference	Test Product	AS/ACIF S002	Amendment 2/2004	
Referenced	Australia	Referenced	ADSL MODEM (G.992.2)	G.992.1	Jun-99	
	Australia	Referenced	ADSL MODEM (G.992.2)	G.992.2	Jun-99	
Return Loss	Australia	Return Loss	ADSL (low pass) Line Filters	AS/ACIF S002	Amendment 2/2004	
	Australia	Return Loss	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	Return Loss	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	Return Loss	Test Product	AS/ACIF S002	Amendment 2/2004	
Ring signal detection	Australia	Ring signal detection	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	Ring signal detection	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	Ring signal detection	Test Product	AS/ACIF S002	Amendment 2/2004	
ring voltage reduction distributed	Australia	ring voltage eduction distributed	ADSL (low pass) Line Filters	AS/ACIF S002	Amendment 2/2004	
Seizure state	Canada	Off-hook d.c. Characteristics	ADSL (low pass) Line Filters	CS-03, Part 1	Issue 8	
	Canada	Off-hook d.c. Characteristics	Cordless Telephone	CS-03, Part 1	Issue 8	
	Canada	Off-hook d.c. Characteristics	IP telephone	CS-03, Part 1	Issue 8	
	Canada	Off-hook d.c. Characteristics	PSTN Fax/Modem	CS-03, Part 1	Issue 8	
	Australia	Seizure state	Cordless Telephone	AS/ACIF S002	Amendment 2/2004	
	Australia	Seizure state	PSTN Fax/Modem	AS/ACIF S002	Amendment 2/2004	
	Australia	Seizure state	Test Product	AS/ACIF S002	Amendment 2/2004	
Send loudness ratings	Australia	Send loudness ratings	Cordless Telephone	AS/ACIF S004	2004	
	Australia	Send loudness ratings	Test Product	AS/ACIF S004	2004	
STMR	Australia	STMR	Cordless	AS/ACIF	2004	

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SEQ Parameter	Economy	Economy Parameter	Product	Document	Revision	Description
			Telephone	S004		
	Australia	STMR	Test Product	AS/ACIF S004	2004	
Testing Requirement	Canada	Testing Requirement	ADSL MODEM (G.992.2)	CS-03 Part VIII	Issue 8, Amendment 7	
Total average power	Australia	aggregate transmit power	ADSL MODEM (G.992.2)	G.992.2	Jun-99	
	Australia	Total average power	ADSL MODEM (G.992.2)	AS/ACIF S043.2	2003	
	Canada	Total Signal Power	ADSL MODEM (G.992.1)	CS-03 Part VIII	Issue 8, Amendment 7	
	Canada	Total Signal Power	ADSL MODEM (G.992.2)	CS-03 Part VIII	Issue 8, Amendment 7	
Total Power, Voiceband	Canada	Total Power, Voiceband	ADSL MODEM (G.992.1)	CS-03 Part VIII	Issue 8, Amendment 7	

NOTE 1

5.1.1.1 CE shall not cause harm or damage to a Telecommunications Network or Facility if any of the following events occur: (a) Failure of any mechanical or electrical component in the CE. (b) Failure of any power supplies resulting in total or partial loss of power to the CE. (c) Discharge or partial discharge of any battery supply. (d) Incorrect manual operation of the CE. ... 5.1.1.4 On restoration of power after a power failure, the CE shall remain in the Off-line condition until another call sequence is commenced. This requirement applies following the first 30 seconds after power is restored.

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Appendix E: Trademarks & Copyright

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