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## COMMERCE COMMISSION

### **Decision No. 377**

Determination pursuant to the Commerce Act 1986 in the matter of an application for clearance of a business acquisition involving:

**TeamTalk Limited**

and

**Telecom New Zealand Limited**

**The Commission:** M J Belgrave (Chairman)  
Dr K M Brown  
E M Coutts

**Summary of Proposed Acquisition:** The acquisition by TeamTalk Limited of the Paging services, Private Mobile Radio, Trunked Mobile Radio and related equipment leasing businesses of Telecom New Zealand Limited.

**Determination:** Pursuant to section 66(3)(b) of the Commerce Act 1986, the Commission declines to give clearance for the proposed acquisition.

**Date of Determination:** 3 December 1999

**CONFIDENTIAL MATERIAL IN THIS DECISION IS  
CONTAINED IN SQUARE BRACKETS [ ]**

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## **THE PROPOSED ACQUISITION**

- 1 Pursuant to section 66(1) of the Commerce Act 1986 (the Act), TeamTalk Limited (TeamTalk) gave notice to the Commission on 9 November 1999 (the application), seeking clearance for the proposed acquisition by it or a wholly owned subsidiary of TeamTalk of the assets which comprise the Paging services, Private Mobile Radio (PMR), Trunked Mobile Radio (TMR) and related equipment leasing activities of Telecom New Zealand Limited (Telecom).

## **THE PROCEDURES**

- 2 The application was registered by the Commission on 9 November 1999. Section 66(3) of the Act requires that the Commission, within 10 working days after the date of registration of the application, or such longer period agreed by the applicant, gives, or declines to give, a clearance for the acquisition. The tenth working day after the registration of the application was 23 November 1999. The Commission and TeamTalk agreed to an extension of eight working days, therefore requiring a decision by 3 December 1999.
- 3 TeamTalk requested confidentiality for certain information contained in the application. In accordance with section 100 of the Act, the Commission made a confidentiality order prohibiting the publication or communication of that information for a period of 20 working days from the date on which the Commission makes a final determination. When the confidentiality order expires, the provisions of the Official Information Act 1982 will apply to the information that was subject to the order.
- 4 The Commission's determination is based on an investigation conducted by its staff and their subsequent advice given to the Commission. In the course of their investigation, Commission staff have discussed the application with a number of parties. These parties included:
  - TeamTalk
  - Telecom
  - Ministry of Commerce
  - operators of local and regional mobile radio networks
  - a network infrastructure and equipment manufacturer
  - users of mobile radio networks
  - Broadcasting Communications Limited (BCL).

## **THE PARTIES**

### **TeamTalk**

- 5 TeamTalk is 50 percent owned by Active Communications Limited (Active Communications) and 50 percent by Communications International Limited (Communications International). Active Communications is a wholly owned

subsidiary of Active Equities Limited, an unlisted investment company of approximately 35 shareholders, none of whom own greater than 20 % of the shares either directly or indirectly. Communications International, whose only asset is its investment in TeamTalk, is jointly owned by five shareholders, each with a 20 % interest. Each of the shareholders of Communications International is either an employee or a director of TeamTalk.

- 6 TeamTalk is the owner and operator of a nationwide TMR network, providing mobile communications services.

## **Telecom**

- 7 Telecom Corporation of New Zealand Limited is a publicly owned company listed on the New Zealand, Australian and New York stock exchanges. Telecom offers a range of telecommunications services including Internet, data communications, mobile and fixed telephony services. These services include cellular, paging and mobile radio networks.

## **INDUSTRY BACKGROUND**

### **Mobile Communications in New Zealand**

#### *Overview*

- 8 Mobile communications have been available in New Zealand since the 1940's. In the beginning conventional (or private) mobile radio was the only option for mobile communications. This provided the simplest of services – open broadcast of voice services over a radio channel.
- 9 Since the early 1980s global mobile communications have been revolutionised by advancing technology. In 1982 paging services were introduced to New Zealand, followed in 1987 by the introduction of analogue cellular services using the US 'Amps' cellular standard. Competition arrived with the introduction of competing GSM cellular services in 1993.
- 10 Globally the introduction of cellular has made mobile communications available to ever widening sections of the community. In its early years, cellular communications was expensive and purely a business tool. However, the trend now is towards mass ownership of cellphones. Some markets in Scandinavia have achieved cellular penetration<sup>1</sup> levels exceeding 50% of their population, while New Zealand is approaching 30%.
- 11 Expected developments include the proposed switch by Telecom from its AMPS/D-AMPS cellular system to a CDMA—Code Division Multiple Access—cellular network within two years, a standard that will provide expanded capacity and improved functionality. Satellite communications may

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<sup>1</sup> Cellular penetration is measured as the number of handsets active on a network, divided by total population of the nation.

also become a more economically viable option in the future, with the commercial launch of at least one major new generation satellite-based system designed to provide global mobile communications for commercial applications.

### *Impact of Cellular on the Mobile Radio Sector*

- 12 Industry participants spoken to by the Commission considered that the introduction of cellular had had a significant impact on the development of the mobile radio sector. Prior to the introduction of cellular, a number of mobile radio users were business people needing to be able to make mobile telephone calls. These users migrated to cellular, impacting the growth of the mobile radio business.
- 13 With the introduction of nationwide TMR coverage and increasing competition in mobile radio, the market had recovered in absolute terms, and has been growing at about 10% per year in terms of mobile radios in use<sup>2</sup>. However, relative to the total mobile communications industry, mobile radio is now a small segment.

### **Mobile Communication Technologies - An Overview**

- 14 The main types of mobile communication technologies available in New Zealand are mobile radio, paging, cellular and satellite-based systems. A brief overview of the main features of each technology follows. This is followed by an overview of mobile data, a particular application of mobile systems, and radio spectrum issues.

#### Mobile Radio

- 15 In its simplest form mobile radio communications, referred to as conventional or private mobile radio (PMR) can be between two handheld radios within line of sight and transmission range of each other. Establishing a single base station sited on a convenient high point can cheaply augment this coverage, allowing communications between users in a wider area over an open channel.
- 16 PMR can be established by users without the aid of a network service provider. Many users operate completely independent PMR systems. In some rural areas, co-operatives (user associations) have been established to share the costs of establishing the base stations to be used by members in their local area. Aside from private networks, service providers such as Telecom, or a number of smaller local mobile communications service providers can provide PMR services.
- 17 PMR systems are relatively inexpensive to operate, and are still favoured by users such as taxi companies. However, PMR lacks privacy and can only support a limited number of users; that is, it has a low system capacity. Furthermore, linking PMR systems to gain wide area coverage is not commonly

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<sup>2</sup> However, this growth has occurred as a result of very significant discounting, which may not continue.

done, as it is a relatively inefficient method of communication over greater distances.

- 18 Trunking is a technology that allows the combination of radio channels to increase the capacity that can be achieved from the same number of conventional channels, overcoming some of PMR's limitations. Relative to PMR, TMR allows more efficient network utilisation and is easier and less expensive to link to provide wide area coverage. It also provides privacy, centralised control of the network, ability to link with the PSTN and many cellular like features (for example caller identification).
- 19 Advantages of mobile radio in general include:
- The ability to transmit immediately due to the fast call set-up or push to talk functionality.
  - Superior coverage of remote areas due to the power and siting of base stations.
  - Group calling; that is, the ability to call from one to many mobiles.
  - Emergency call priority (TMR only). The ability to override network traffic and complete emergency calls. This feature is critical where life-threatening situations exist.
  - Centralised control of network. For example, it is possible to control costs by preventing or limiting calls to the PSTN from radios.
  - Can be a relatively inexpensive form of mobile communications, especially for localised use.
- 20 A major disadvantage of mobile radio, both PMR and TMR, is lack of capacity—large numbers of users cannot be supported. This means that it is difficult for mobile radio to supply mass communications markets, or to support some of the value added features common on cellular networks.
- 21 The functionality of mobile radio described above makes mobile radio ideally suited to “command and control” and dispatch operations. Common applications include:
- transport operators
  - taxi / courier dispatch
  - security operations
  - infrastructure maintenance
  - emergency services – Police, Fire, Ambulance.
- 22 Although difficult to measure precisely, as licences only record channels in use, there could be as many as 100,000 users of PMR in New Zealand at present. Telecom estimates that about [ ] of these users are facilitated by Telecom, small mobile communications dealers, or user associations. The balance provide their own service.
- 23 There are also approximately [ ] TMR users, with [ ] percent of these using either Telecom or TeamTalk, as service providers. Telecom and TeamTalk both

offer nationwide coverage. There are two significant regional TMR operators. MCS Digital RT Limited (MCS), based in Auckland, has about [ ] customers. T L Parker, based in Canterbury, has about [ ] customers. The remaining users subscribe to three small local operators, each with [ ] customers or less. In revenue terms, the mobile radio market for service providers in New Zealand is estimated to be [ ] million dollars per annum.

### Paging

- 24 Paging provides one-way communication. In its early form, paging was simply by way of a 'beeper'. This alerted the user to call into a central point, usually by locating a fixed network telephone. Modern paging systems deliver alphanumeric messages.
- 25 Paging systems are broadcast radio systems, and have good coverage. However, the key advantage is assurance of timely delivery. Delivery is immediate, unlike cellular message systems, which can, like e-mail, suffer some delay. For this reason pagers are still favoured for emergency services.
- 26 At present there are about [ ] paging service users. Most users subscribe to Telecom's service, which is the only national paging network.
- 27 Two smaller companies—Page 1 Limited and Answer Services Limited—provide local networks in Whangarei, Auckland, Hamilton, Wellington and Christchurch. These companies also provide message services, which will deliver to other messaging platforms, such as cellular phones.

### Cellular

- 28 Cellular systems became commercially available during the 1980s, and in the 1990s have become the principal form of mobile communications<sup>3</sup>. Cellular systems overcome some of the capacity problems of mobile radio by constructing a network with numerous cell-sites, each with limited individual coverage. In stylised form, the architecture can be viewed as similar to a honeycomb structure. As each cell has limited coverage, frequencies can be reused more often, increasing capacity.
- 29 Original cellular systems used analogue radio transmission, relying on the cell structure for capacity. However, digital technologies can be used to further increase capacity and therefore lower the cost of service. The two major digital systems in use in New Zealand, D-AMPS (Telecom) and GSM (Vodafone), are TDMA—Time Division Multiple Access—technologies. These technologies deliver improved capacity, and a number of other benefits such as increased battery life, caller identification and the ability to receive short text messages. However, in New Zealand analogue (Telecom's AMPS network) still generally provides superior coverage for voice calls in rural areas.

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<sup>3</sup> Cellular accounts for more than 80% of mobile communications users in New Zealand.

- 30 Cellular systems were designed for person to person communications, and operate in a manner similar to fixed telephone networks. Call set-up is slow relative to mobile radio. While this is not significant to an average cellular user, it means that cellular is not suited to emergency service applications. Likewise, while 'group calling' can be established on a cellular network, it is achieved by setting up a conference call, which is much slower than a mobile radio broadcast to a group of users.
- 31 Cellular systems, by design, require large numbers of cell-sites to provide national coverage and hence demand significant capital expenditure. However, given the volume of users supporting the cellular networks, and the fundamental importance of the geographic coverage of mobile services, there has been a continual build-out of cellular coverage since the initial establishment of the service. As a result, cellular coverage now covers most populated areas and significant traffic routes in New Zealand.
- 32 Cellular handsets are small and low powered, hence limiting the distance over which communication with the cell-site can be established. This can be improved by the use of vehicle booster kits which increase the power of the transmitter significantly. Commercial users who require good coverage while on the road commonly use such kits. Nonetheless, for reasons associated with transmitter power and location of cell-sites, cellular systems do not provide the same level of coverage available via mobile radio in some remote areas.

### Satellite

- 33 Satellite communication has been used for many years for international communications. Until very recently, those communications were via geo-stationary satellites in high earth orbit. This required powerful earth based transmitters, limiting the application of satellite to mobile (handheld) communications. These systems had limited capacity and were generally expensive to use. Satellite communications have been favoured for very remote land based or maritime applications, where few other options are available. The commercially available INMARSAT service is an example of this type of satellite service.
- 34 A new generation of satellite mobile communications is coming into service. Iridium is the first of a new generation of satellite systems, utilising low earth orbit satellites. This system is capable of handheld voice communications, as well as paging, messaging services and emergency communication services. The satellite phones that use the system are capable of roaming to conventional cellular systems when available, lowering the cost of the service. Satellite services provide the ultimate level of coverage for operating in remote areas.

### Mobile Data

- 35 Mobile communications are most commonly used for voice communications. However, applications involving the transmission of data over a wireless network are increasing, and are expected to become more important over time.



- 36 Messaging services, such as those delivered to pagers or cellphones, are an example of data over a wireless network. Industrial telemetry applications, such as remote monitoring of machinery, are also increasing. These services can be delivered over a variety of wireless technologies, including paging, mobile radio, and cellular networks. Dedicated mobile data networks exist. Telecom's CDPD (Cellular Digital Packet Data) is an example. A key advantage of mobile radio and cellular systems is that data applications can be utilised over a platform that also provides for two-way voice communication.

### Radio Spectrum

- 37 The Radio Spectrum Management Group of the Ministry of Commerce (MOC) is the issuer and administrator of radio spectrum licences within New Zealand. The radio spectrum under MOC management operates at frequencies lower than 3000 Gigahertz (GHz).
- 38 Access to radio spectrum is an essential requirement for the operation of any form of mobile or wireless communication service. Spectrum is a limited resource and, as technology advances and market demands change, it is necessary to open and close bands of spectrum to certain operations over time. This process can be slow, as it requires balancing historical precedent and incumbency rights with the need to move forward and allow new applications.
- 39 Limited spectrum is available for nationwide TMR operations. Dedicated spectrum for use by TMR systems in New Zealand is in the 400 MHz (TD) band, and 800 MHz (TS) band. Equipment used in each of these bands is incompatible with use in the other band, and as a result switching between networks on different bands is costly for mobile radio users.
- 40 Significant congestion issues exist in the mobile radio—TD and TS—bands in the Auckland and Waikato regions. As a result, MOC advise that no significant new competitor would be able to enter the TMR network business on a national basis utilising either the TD or TS bands. However, spectrum could be found for localised operations throughout New Zealand.

## **THE RELEVANT MARKETS**

### **Introduction**

- 41 The purpose of defining a market is to provide a framework within which the competition implications of a business acquisition can be analysed. The relevant markets are those in which competition may be affected by the acquisition being considered. Identification of the relevant markets enables the Commission to examine whether the acquisition will breach the threshold of anti-competitiveness set out in Section 47(1) of the Act by leading to the acquisition or strengthening of a dominant position.

42 Section 3(1A) of the Act provides that:

“...the term ‘market’ is a reference to a market in New Zealand for goods or services as well as other goods or services that, as a matter of fact and commercial common sense, are substitutable for them.”

43 Market definition principles have been set out by the High Court in *Telecom Corporation of NZ Ltd v Commerce Commission* (the AMPS A case):<sup>4</sup>

“First, and most generally, we seek to identify the area or areas of close competition of relevance for the application(s). In other words, we seek to identify the constraints upon the price and production policies of firms whose conduct is of relevance for the matters litigated. In this matter it is of special importance to highlight the constraints upon Telecom’s price and production policies.

Secondly, competition may proceed both through substitution in demand and substitution in supply in response to changing prices or, more comprehensively, the changing price-product-service packages offered ... . The mental test that prompts a summary evaluation of the evidence is to ask how buyers and sellers would likely react to a notional small percentage increase in price of the products of interest, eg the standard telephone service, the cellular service (the ‘price elevation test’). ...

Thirdly, the market is a multi-dimensional concept – with dimensions of product, space, functional level, and time. Here we need to give special attention to the principles that should govern the isolation of the dimensions of function and time.

If we ask what functional divisions are appropriate in any market definition exercise the answer, plainly enough, must be whatever will best expose the play of market forces, actual and potential, upon buyers and sellers.”

44 Markets are defined in relation to product type, geographical extent, and functional level. With the first two dimensions, market boundaries are determined by testing for substitutability, in terms of the response to a change in relative prices of the good or service in question and possible substitute goods or services. A properly defined market will include products which are regarded by buyers as being not too different (‘product’ dimension), and not too far away (‘geographical’ dimension), and are thus products to which they could switch if a small yet significant and *non-transitory* increase in *price (ssnip)* of the product in question were to occur. It could also include those suppliers currently in production who are likely, in the event of such a *ssnip*, to shift promptly to offer a suitable alternative product even though they do not do so currently. However, supply-side factors are not generally considered by the Commission in the definition of markets, but are considered at a later stage as part of the process of identifying market participants, including “near entrants”, and in the consideration of the constraints from market entry.

45 The Commission’s *Business Acquisition Guidelines* suggest the use of a *ssnip* test to provide a framework for testing for substitutability, and hence for determining the boundaries of a market as a matter of fact and commercial common sense.<sup>5</sup> In regard to product market definition, the following question is posed; if the price of the product were to be raised by a hypothetical

<sup>4</sup> (1991) 4 TCLR 473, 502; 3 NZBLC 102,340, 102,362.

<sup>5</sup> Commerce Commission, *Business Acquisition Guidelines*, 1999, at pp. 14-15.

monopolist by a small yet significant non-transitory increase in price (say, five percent) above the competitive level for at least a year, would so many buyers switch to buying alternative products (demand-side substitutability), that the price rise would not be profitable?

- 46 If the price rise is profitable because little or no such switching occurs, then the product as defined has no close substitutes, and it falls within a separate product market. On the other hand, if the price rise is not profitable because of widespread switching, the products to which buyers' switch can be considered to be close substitutes for the initial product. These products are then added to the initial product, and the new, enlarged, product definition is subjected to the same test. This process continues until no significant switching occurs in response to the increased price. The boundaries of the product market are therefore identified. The product market so arrived at should occupy the smallest range of products consistent with a hypothetical monopolist being able to exert market power, as defined by the *ssnip* test.
- 47 The *ssnip* test is also used to gauge the geographical extent of the market. The process starts by taking one small district or region as appropriate, and considering whether a hypothetical monopolist of the product in that area, if it were to impose a *ssnip* as defined above, would lose so many customers to suppliers of the product outside that area that the price increase would be unprofitable. An absence of switching may indicate that the suppliers in other areas cannot provide substitute products, in which case the area initially specified would constitute a separate geographical market for the product. On the other hand, the presence of widespread switching would show that suppliers in other areas provide a product which is an effective substitute and, therefore, that the geographical extent of the market is broader. The test would then be repeated with the broader geographical area, and this process would continue until significant switching outside of that area in response to the price rise ceases. Once again, the geographical market for a product is the smallest geographical space in which a hypothetical monopolist could exert market power.
- 48 In addition, markets are also defined in relation to functional level. Typically, the production, distribution, and sale of products proceed through a series of functional levels. For example, that between manufacturers and wholesalers might be called the "manufacturing market", while that between wholesalers and retailers is usually known as the "wholesaling market". The levels affected by this proposal have to be determined as part of the market assessment.
- 49 In practice, the process of defining markets is unlikely to be as precise and scientific as suggested by the *ssnip* test. However, in the Commission's view, the *ssnip* approach provides a useful framework for assessing the question of what other products, or products from other areas, are substitutable for the product in the area in question as a matter of fact and commercial common sense. The test simply provides a means within which judgments on a case-by-case basis, using whatever information is available or can readily be generated, have to be made. The issue remains one of substitutability in response to a price

increase, and so evidence relating to the price elasticity of demand, the behaviour of buyers, the availability of technically suitable alternative products and informed opinion from various sources all provides useful information. This has been the approach used with regard to this proposal.

- 50 In this application, and following investigation of the proposed acquisition by TeamTalk, the Commission considers that the relevant area of aggregation is in the provision of TMR network services.
- 51 The proposed acquisition of Telecom's paging services does not involve any aggregation of market share in this product area. Further, the Commission's investigation has not revealed any other issues of concern in terms of close inter-relationships between paging and mobile radio markets. As such, paging services are not considered further.

## **The National Market for TMR Network Services**

### Product Dimension of the Market

- 52 The proposed acquisition affects the supply of TMR network services. TeamTalk has argued in the application that the relevant market is the 'mobile communications services' market, which includes a number of products, which can be substituted for each other. These include PMR, TMR, cellular and paging. In addition to these, satellite-based communication services might also be considered a substitute for one or more of the above mentioned products.
- 53 Fixed network services, either wire or wireless, are not considered potential substitutes as they lack the prime feature of any mobile communications service – mobility.
- 54 In defining the relevant markets, the Commission has therefore given consideration to the potential for PMR, paging, cellular and satellite based mobile communication services to provide acceptable substitutes for TMR services.

### *Private Mobile Radio Services*

- 55 PMR lacks coverage and privacy, but for a significant portion of mobile radio users it is inexpensive and effective. PMR provides two of mobile radio's most distinctive benefits, 'one-to-many' group communications, and fast 'push-to-talk' functionality, and therefore remains popular for localised uses.
- 56 PMR is relatively easy to establish by private users, especially if only one base station is required. Estimates<sup>6</sup> provided by the industry suggest that perhaps [ ] mobile radios operate on private PMR systems.

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<sup>6</sup> It is difficult to establish exact numbers, as PMR is simply open channel communications. The number of channels in use is known, but not the number of users.

- 57 PMR as a technology is not well suited to coverage over wide areas. Due to the cost of establishing wide area networks, commercial service providers employing trunking technologies usually cater for these needs. Even if a small radio operation is required that might be served with PMR, if the application is essential to the organisation, it is likely that a network operator will be used to ensure 24 hour technical support of the system. A TMR network may also be chosen where security or other value added functionality requirements are present.
- 58 Telecom has supplied wide area coverage services with PMR to two significant customers with specific needs. Commission staff spoke with another significant corporate that operates its own national PMR system—constructed to suit its own needs. The Commission understands it is technically possible to provide such systems if required, but that it is not an economic option compared with use of the national trunked networks. PMR therefore is not considered a close substitute for wide area mobile radio operations.

#### *Paging Services*

- 59 Paging is a form of one-way communication, varying from simple tone based paging through to alphanumeric messaging. Paging services are still preferred by a small but significant section of users of mobile communications. In particular, they are likely to remain in favour with some emergency services, as the paging system architecture provides a high level of assurance of message delivery, with little or no time delay.
- 60 Pagers are a delivery platform used to receive some form of message. With the advent and growth of message delivery functionality over cellular, many users are moving to cellular. For this reason the pricing of paging services is constrained by cellular pricing. However, paging service operators spoken to by the Commission (Page 1, Telecom) did not generally consider mobile radio services as a direct competitor.
- 61 The Commission concludes that paging services are not a close substitute for mobile radio services.

#### *Cellular Services*

- 62 Cellular services provide two-way voice and data communications, and in the Commission's view, are likely to provide the closest substitute for mobile radio services. The question of product substitutability has two dimensions – functional and economic.

#### *Cellular – Functional Substitutability*

- 63 It is arguable that one of the most important functional attributes of any mobile communication service is geographic coverage. The importance of this attribute can be seen in the marketing efforts of cellular operators dedicated to selling the coverage benefits of their networks. Given the importance of coverage as a

competitive advantage, both Telecom and Vodafone have continued to build out cellular coverage.

- 64 The applicant submits that cellular has now achieved close to competitive parity with mobile radio in terms of coverage. Telecom stated that mobile radio was still best for rural areas, especially in the South Island through to the West Coast. Comparison of coverage maps for Telecom's TMR service with Telecom analogue cellular, which generally provides superior coverage to digital, suggests that mobile radio still has an advantage in some rural locations. By comparison, for most areas with significant population or on main highways, mobile radio would appear to have little or no coverage advantage.
- 65 The Commission's investigations suggest that while in some areas mobile radio has an advantage in coverage, in other areas cellular has an advantage. A major user of mobile radio services stated that this was the case for their South Island operation. However, for some users the difference is significant. For example, a company in the electricity industry stated that cellular would never provide the coverage or security of operation of the national mobile radio service currently used.
- 66 Given the competitive pressures to continue building out cellular coverage, it seems reasonable to assume that mobile radio will struggle to maintain a significant coverage advantage except in some remote locations. The Commission understands that while, in terms of coverage, mobile radio and cellular are likely to be reasonable substitutes for some mobile radio users, there are also customers for whom this is not the case.
- 67 For other areas of functionality, there are significant differences between systems. Industry participants spoken to highlighted the following as the key differentiators of mobile radio:
- group calling,
  - channel monitoring,
  - fast call set-up/push to talk,
  - emergency call override.
- 68 Group calling is considered one of the most definitive features of mobile radio. For PMR, the nature of mobile radio where a call is broadcast over an open channel, provides the ability for all parties listening to a channel to receive that broadcast. Cellular, by contrast, is designed for person to person communications. This group calling feature is useful for applications that require this group sharing of knowledge (taxis and security firms are good examples). Telecom stated that this was a useful feature in command and control application, though it also stated that this was becoming less of a requirement over time.
- 69 Channel monitoring is the ability to listen in to communications on the mobile radio network. Industry participants considered this is very useful for companies that use mobile radio as a 'command and control' tool, where the ability to

monitor allows an overview of operations to be maintained without continual checking of individual stations.

- 70 Fast call set-up refers to the fact that with a mobile radio it is often possible to simply ‘push and talk’, without delay in dialling or call set-up. This is important in situations where immediate communications may be required, such as security applications, or where frequent short communications are made.
- 71 Emergency call override enables an emergency call to interrupt other traffic and guarantee immediate communication. Users involved in services with the possibility of life-threatening incidents occurring considered this an essential feature.

#### *Conclusion on Functional Substitutability of Cellular*

- 72 For a number of applications cellular does not provide a suitable alternative in functional terms. Both network operators and customers spoken to by the Commission were generally of the view that customers that required these functions would continue with mobile radio, and would in time move to new generation mobile radio solutions, rather than to cellular solutions because of the dependency on these functions.

#### *Cellular – Economic Substitutability*

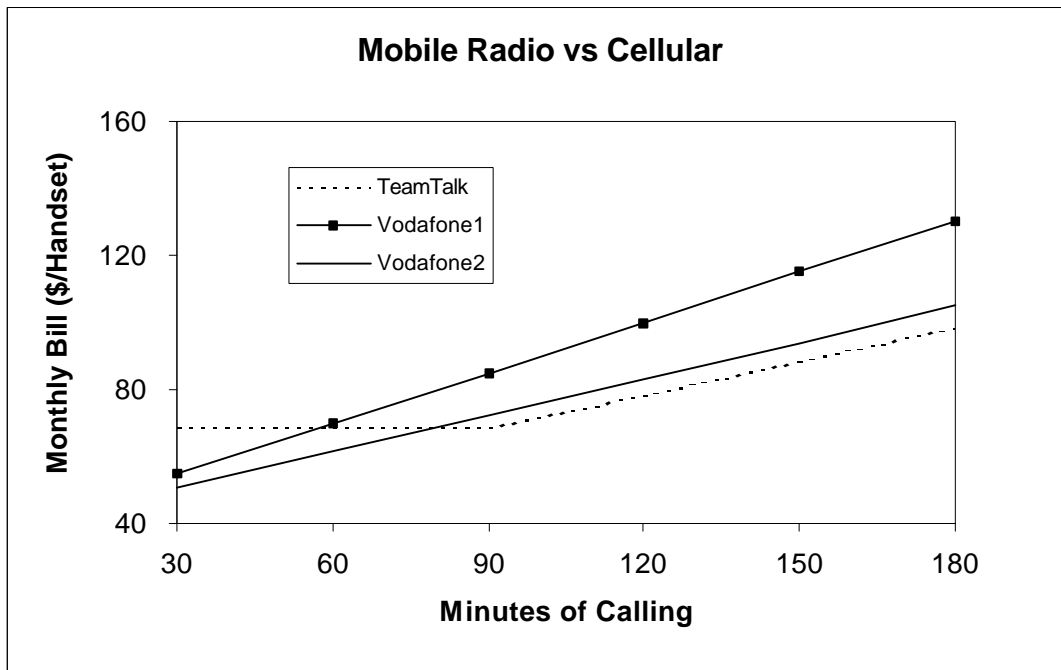
- 73 Economic substitutability refers to whether a product is a cost-effective substitute. For mobile communications the prices need not be identical—as different products have different features—as long as the price value trade off is acceptable<sup>7</sup>.
- 74 Most parties spoken to by the Commission were of the view that mobile radio was much cheaper than cellular, and therefore cellular was not a substitute in terms of cost.
- 75 Industry participants spoken to by the Commission stated that there was movement of customers between mobile radio and cellular. However, in many cases these parties also argued that some customers returned to mobile radio either because cellular, in practice, did not deliver the functionality mobile radio had, or because of cost over-run.
- 76 Telecom stated that mobile radio prices had been falling as a result of competition from both TeamTalk and cellular, but that in its view cellular was probably its greatest source of competition for customers.
- 77 Pricing comparisons are also difficult in that companies suffering cost over-runs after moving to cellular referred to customers with local needs as much as national. For these customers PMR/TMR are very much cheaper, as local mobile radio coverage is considerably cheaper than national. Cellular call plans,

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<sup>7</sup> For example, a paging solution may need to be significantly cheaper than a cellular messaging solution, as a cellphone offers the benefit of immediate two-way communication when required.

on the other hand, do not currently differentiate on distance – all calls are ‘national’. Furthermore, cellular prices have fallen over time, and especially in the last year or so.

- 78 For national mobile radio calling plans, compared with cellular, the issue is less clear-cut—as shown in the following graph:



- 79 The graph compares current prices for national coverage from TeamTalk, with Vodafone's current Group User Plan<sup>8</sup>. Vodafone's plan varies the price per minute depending on total number of minutes used by the group. 'Vodafone1' uses the highest per minute rate, while 'Vodafone2' uses the lowest. While TeamTalk appears slightly cheaper, mobile radio equipment is significantly more expensive than cellular handsets, and cellular is cheaper if a significant portion of calls are made to the fixed network.
- 80 This price comparison is intended only to show that cellular, at list prices, is becoming a potential economic substitute for some users requiring national coverage. However, there are other economic issues. For example, a number of organisations spoken to considered that it was easier to control costs of a mobile radio operation, as central limitations can be more easily placed on mobile radios. For example, mobile radio systems can limit the ability of individual radios to access the fixed network.
- 81 This analysis tends to suggest that for some customers of national trunked mobile radio, cellular is an economic substitute, depending on customer calling patterns and functionality requirements. It is forecast that cellular prices will continue to fall. As technology costs fall and given the strategic intent of

<sup>8</sup> A plan for groups of five or more users, where total minutes used by the organisation are pooled.



incumbent cellular operators<sup>9</sup>, this assumption would appear reasonable. However, the Commission notes that reliance on such a forecast requires it to assume continuation of the current business strategies of the incumbent cellular companies.

#### *Conclusion on Economic Substitutability of Cellular*

- 82 The Commission concludes that cellular may provide an economic substitute for some, but not all, customers of wide area TMR services.

#### *Satellite*

- 83 Satellite, like cellular, is designed for one-to-one communications, and has similar functionality issues to cellular, with the exception of coverage. Satellite provides the best coverage of any remote area system. For those customers with coverage requirements that currently have no option other than mobile radio, and where functional requirements are not restrictive, the major issue with satellite is cost. Equipment costs and usage charges do not make satellite a close substitute for mobile radio at this time.

#### *Price Discrimination*

- 84 The above discussion of product substitution possibilities has been undertaken to attempt to define which products form realistic substitutes for national trunked mobile radio services. Should substitutes be available, if sufficient substitution would occur to make a 5 percent price rise unprofitable, as defined in the *snip* test, then those other products are considered to be part of the same market.
- 85 In many cases where product markets need to be defined, some customers will be able to switch between product A and product B, while others cannot, and are therefore captive. The important question is whether substitution by the non-captive customers will prevent a monopolist charging prices above competitive levels.
- 86 Even if the proportion of captive customers is small, the monopolist may be able to set monopolistic prices if it can discriminate between different customers, charging higher prices to those who are captive, and lower prices to those who are not.
- 87 Telecommunications markets are notable for price discrimination. Charges vary by distance, time of day, length of call, individual customer and many other factors. In mobile communications, charges can be varied in numerous ways. Furthermore, significant customers are often dealt with on an individual basis by the network operator, allowing specific tailoring of the service package, including pricing, to the individual customer.

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<sup>9</sup> Telecom has publicly declared that it would like to push cellular penetration to 50% of the New Zealand population within two years.

### *Conclusion on Economic Substitutability*

- 88 While it is clear than in some cases cellular will provide a suitable economic and functional substitute, it is equally clear that some customers will be captive to mobile radio. Given that these customers are readily identifiable, the Commission considers that, for the purposes of this application, a trunked mobile radio market is the appropriate market for analysis.

### Functional Dimension of the Market

- 89 Both TeamTalk and Telecom operate national trunked mobile radio networks, and undertake both direct sales and service functions. Both networks also connect customers via independent dealers, who are not exclusive, although some have chosen to sell one network exclusively. Sales via dealers are on a commission basis, and the customer is connected directly to the chosen network. Dealers benefit from the commission from the network, and margin on installation and hardware sales.
- 90 The competition impacts of this proposed merger, if any, stem from the amalgamation of the competing networks. Therefore the market for TMR network services is considered relevant to the analysis of this application, where the services referred to include the provision and operation of the network, and direct sales and service activities.

### Geographic Dimension of the Market

- 91 Two national TMR networks, TeamTalk and Telecom, serve the mobile radio market and operate in the 400 MHz (TD) band. An Auckland based company operating in the 800 MHz (TS) band—MCS—has a TMR network that covers much of the North Island with the exception of Wellington, and smaller operators are present in each of Auckland, Wellington and Christchurch. T L Parker, operating in Christchurch, also operates in the 800 MHz (TS) band. Furthermore, a substantial number of users are on private mobile radio networks provided by Telecom, smaller communications operators, user associations or their own systems.
- 92 The proposed acquisition involves the merger of the two national networks. However, these networks serve users with local, regional, island wide and nationwide coverage needs. While a key differentiator of TMR networks is their ability to provide wide area coverage at an economic cost, it is the regional, island and nationwide impacts that are of relevance in analysing this application.
- 93 MCS has competitive coverage in the northern half of the North Island. It could therefore be argued that this should be analysed as a separate market. However, while MCS provides a competitive option for some customers, major customers of nationwide TMR often have a combination of regional, island wide and national needs.

- 94 For these reasons, and as the defining feature of these operators is their national coverage, the Commission concludes that a national market is the appropriate market for analysing the proposal.

#### Conclusion on Market Definition

- 95 The Commission concludes that, for the purpose of analysing this application, the appropriate market is the National Market for TMR Network Services.

### **COMPETITION ANALYSIS**

#### **Overview**

- 96 Section 67(3) of the Act, when read in conjunction with s 47(1) of the Act, requires the Commission to give clearance for a proposed acquisition if it is satisfied that the proposed acquisition would not result, and would not be likely to result, in a person acquiring or strengthening a dominant position in a market. If the Commission is not so satisfied, clearance must be declined.
- 97 Section 3(9) of the Act states that a person is in a “dominant position” in a market if:
- “... a person as a supplier or an acquirer of goods or services either alone or together with an interconnected or associated person is in a position to exercise a dominant influence over the production, acquisition, supply, or price of goods or services in that market . . .”
- 98 That section also states that a determination of dominance shall have regard to:
- market share, technical knowledge and access to materials or capital;
  - the constraint exercised by competitors or potential competitors; and
  - the constraint exercised by suppliers or acquirers.
- 99 In reaching a view on whether a person is in a position to exercise a dominant influence in a market, the Commission considers the foregoing non-exhaustive list of factors, and any other relevant matters which may be found in a particular case.
- 100 In the Commission’s view, as expressed in its *Business Acquisition Guidelines 1999* (p.17), a dominant position in a market is generally unlikely to be created or strengthened where, after a proposed acquisition, either of the following situations exist:
- the merged entity (including any interconnected or associated persons) has less than in the order of a 40 percent share of the relevant market; or
  - the merged entity (including any interconnected or associated persons) has less than in the order of a 60 percent share of the relevant market and faces competition from at least one other market participant having no less than in the order of a 15 percent market share.

101 In *Port Nelson Ltd v Commerce Commission* [1996] 3 NZLR 554, the Court of Appeal approved the following dominance standard, adopted by McGechan J in the High Court:

“... dominance involves more than ‘high’ market power; more than mere ability to behave ‘largely’ independently of competitors; and more than power to effect ‘appreciable’ changes in terms of trading. It involves a high degree of market *control*.” (emphasis in original)

102 Each of the relevant markets is considered below to assess whether the proposed merger might lead to the acquisition or strengthening of a dominant position.

### **The National Market for TMR Network Services**

#### Market Concentration

103 The following table gives an estimate of market share by handset in use:

<b>TMR – National Market Share (by handset)</b>		
Telecom	[ ]	[ ] %
TeamTalk	[ ]	[ ] %
MCS	[ ]	[ ] %
T L Parker	[ ]	[ ] %
Other	[ ]	[ ] %
Total	[ ]	

104 The proposed combined entity would control [ ] percent of the market on a national basis. Data supplied to the Commission indicates that approximately half of the customers using either Telecom or TeamTalk TMR use wide area or national coverage services, or about [ ] mobile radios.

#### Constraint from Existing Competition

105 MCS provides an alternative for users of TMR services in the northern part of the North Island. However, MCS has limited coverage in the lower North Island, and none in the South Island. Furthermore, MCS has limited radio spectrum available to it<sup>10</sup>. For customers that could use MCS, a significant cost would be incurred in changing their radio equipment to the 800 MHz equipment used by MCS’s network<sup>11</sup>.

106 T L Parker, which also operates in the 800 MHz band, covers the Christchurch and Canterbury plains area immediately adjacent to Christchurch<sup>12</sup>. As a regional operator, T L Parker does not compete for customers requiring wide area South Island, or national coverage.

<sup>10</sup> Data supplied by MOC indicate that, of all spectrum available for provision of TMR services, MCS holds [ ] percent of the spectrum.

<sup>11</sup> This would not be an issue for a company upgrading its entire fleet of radios. However, mobile radios have very long service lives—10 or more years—so such upgrades would be rare.

<sup>12</sup> Coverage is from Ashburton in the south, to Amberley in the north.

- 107 PMR services are an option for many local customers, some of which have chosen to use TMR. However, as discussed in the market definition analysis, PMR is not generally suited to supplying cost effective wide area coverage. The Commission is therefore of the view that the option to provide wide area coverage via PMR would not provide significant constraint on the proposed single national TMR service provider.

#### *Tetra*

- 108 The applicant has argued that a new digital mobile radio system—Tetra—being constructed by the New Zealand Police could provide a commercial alternative.
- 109 Discussion of the Tetra system with the Police, Ministry of Commerce and industry participants would suggest the ultimate form of any future Tetra network is highly uncertain. Tetra is likely to cover Auckland, and perhaps the major urban centres, though this is uncertain. In either case, as it is a digital system with excellent data but poor coverage capabilities, it will not be used to provide wide area national coverage. It was further suggested by a number of industry participants, that should Tetra ever become commercially available, it would be more expensive than alternative commercial systems.

#### *Cellular*

- 110 Information received by the Commission in the course of its enquiries suggests that a large portion of current wide area trunked mobile radio services use the service primarily for station to station communications. Use of the group calling functionality is not particularly common.
- 111 This suggests that for many users cellular will be an option. This is particularly the case where a significant proportion of the customers calls are to parties outside of the customer's fleet. [
- ] Both  
Telecom and TeamTalk were able to provide examples of customers that had switched to cellular.
- 112 Against this, the Commission also identified customers that would not be able to switch to cellular. The reason was functionality – remote area coverage, emergency calling, and group calling.
- 113 It seems likely that cellular will be an option for a significant segment of users, at least in terms of functionality. For some, it would also be a suitable economic substitute. Other things being equal, cellular would provide some competitive constraint on the proposed entity. However, as noted in the section on price discrimination, there is a small but significant segment of mobile radio customers that are unable to use any other service. As these customers will be individually identifiable to the merged entity, and pricing on a customer by customer basis will be practicable, the Commission is not satisfied that competition from cellular will provide these customers with protection from the potential for the merged entity to exercise market power.

### *Satellite*

- 114 From the Commission's enquiries, the most critical functionality issues that keep some users of wide area mobile radio captive to this product are remote coverage, and the security of service features that are needed for situations where life may be at peril. Satellite is in a position to compete on these features.
- 115 The key to satellite then is its economic substitutability. It is currently too expensive. Given the capacity of a system such as Iridium, the extent to which this remains a barrier is a function of the business and pricing strategy pursued by the Iridium consortium. The cost of the system has two parts to the user, the terminal equipment, and actual usage. In the South Pacific, with low capacity utilisation, service pricing could be quite flexible. However, the equipment is relatively expensive. While prices will fall over time, satellite phones are likely to remain relatively expensive for some time.
- 116 The cost of satellite services could change at short notice. However, the Commission is not in a position to forecast or speculate on the likely market strategy of satellite operators. As a result, the Commission does not consider satellite a strong constraint at this time, nor give it significant weight for the immediate future.

### Conclusion on Constraint from Existing Competition

- 117 The Commission concludes that existing competition can only provide a limited constraint, for some customers, on the proposed merged entity.

### Constraint by Potential Competition

- 118 A business acquisition is unlikely to result in any person acquiring or strengthening a dominant position in a market if behaviour in that market continues to be subject to significant constraints from the threat of market entry.
- 119 The Commission accepts that potential competition can act as a constraint on business activity. An assessment of the nature and extent of that constraint is an integral part of the Commission's assessment of competition and market dominance.
- 120 In order for the threat of market entry to be a sufficient constraint on the exercise of market power, the Commission's approach is based on the "*lets*" test. Under this test, to constitute a sufficient constraint, entry must satisfy all four of the following criteria: it must be *likely*, sufficient in *extent*, *timely* and *sustainable*.<sup>13</sup> Following consideration of the barriers to entry in the national market for TMR network services, constraint imposed by potential entry is assessed against the *lets* test.

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<sup>13</sup> Commerce Commission, *Business Acquisition Guidelines*, 1999, pp. 19-20.

### Barriers to Entry

121 The potential for entry to the TMR market on a national basis is subject to three main issues or potential barriers:

- Availability of radio spectrum
- Access to suitable radio sites, and
- Sufficient market size.

Each of these issues is discussed in turn.

### *Access to Radio Spectrum*

122 Dedicated radio spectrum for TMR is available in both the 400 MHz (TD) band and 800 MHz (TS) band. The right to use spectrum is given by way of a licence issued to use a given channel within a stated geographic location. Channels are therefore reused in different areas of the country. The following table provides an overview of current spectrum allocation shares:

Telecom	[ ]	[ ] %
TeamTalk	[ ]	[ ] %
MCS	[ ]	[ ] %
Other	[ ]	[ ] %
Total	[ ]	

123 The combined entity would control about [ ] percent of all available trunking spectrum, including both the 400 and 800 MHz bands. Furthermore, for the 400 MHz (TD) band, it would control [ ] percent of the available spectrum. This is significant, as operators can change easily between Telecom and TeamTalk's 400 MHz networks. However, moving between 400 and 800 MHz networks—such as those operated by MCS and T L Parker—would require new equipment to be purchased.

124 As discussed earlier, localised spectrum is available throughout New Zealand. Discussions with MOC suggest that, although in theory a national TMR network operating in the 400 MHz (F) band could be established, limited channels are available in this band. In addition, some channels are already allocated.

125 Radio spectrum is subject to incumbency rights. This means that if the Ministry of Commerce wishes to move an incumbent operator, it must provide alternative spectrum. Even if alternative spectrum exists, moving is likely to be resisted by incumbents, as changing to new frequency bands requires significant investments in new equipment, both for the network operators and customers.

126 The Ministry of Commerce advises that spectrum issues would mean it is unlikely that a significant competitor would be able to establish itself in

Auckland. The Ministry does not anticipate any major reorganisation of radio spectrum rights.

- 127 Given the existing radio spectrum allocations, the existence of incumbency rights and lack of new spectrum options, the Commission concludes that lack of radio spectrum provides a significant barrier to entry for the foreseeable future.

#### *Access to Radio Sites*

- 128 Construction of a national TMR network at minimum cost would require access to the best sites for radio stations currently available. Some industry participants indicated that this had been a problem in the past, as both Telecom and BCL<sup>14</sup>—the main owners of suitable sites—were in the mobile radio business.
- 129 [ ] BCL has advised that it would provide access to any party where technically feasible on suitable commercial terms.
- 130 The Commission therefore concludes that access to suitable radio sites is unlikely to be a significant barrier to entry.

#### *Market Size*

- 131 Whether entry to a market is likely to occur on a significant scale requires the entrant to consider it likely that the business will be profitable in the long term. In network industries, this requires achieving sufficient network utilisation to make the network economic. This is a function of both the size of the overall market, and the market share that can be gained.
- 132 Most industry participants spoken to questioned whether construction of another national trunked mobile radio network would be economic. It was suggested that many areas of the country, given the small size of the market, were close to a natural monopoly<sup>15</sup> for such services. Telecom stated that its TMR network [ ].
- 133 Against this, scale entry has occurred in the past, both from TeamTalk itself, and from MCS. This appears to have occurred against an expectation that PMR users would lose their spectrum and need to migrate to a trunked solution, a migration that has not eventuated. At this time there is no indication that such a forced migration, which would significantly expand the market, is likely to occur.

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<sup>14</sup> Broadcast Communications Limited (BCL) is a wholly owned subsidiary of Television New Zealand. It is a provider of services to operators of broadcast and telecommunications networks, including the provision of “co-siting” services to television and radio broadcasters and the operators of telecommunication networks for a fee.

<sup>15</sup> A natural monopoly is a market where, due to scale or scope economies in production and limited size of the market, the service is most economically provided by a single provider.



### Conclusion on Barriers to Entry

- 134 The Commission concludes that the size of the market, combined with competition from competing technologies in significant segments of the market, would raise issues of whether scale entry would be commercially viable.

### Conclusion on Constraint by Potential Competition

- 135 Against the Commission's '*lets*' test, scale entry is not likely as access to radio spectrum is a significant barrier to entry into the national market for trunked mobile radio services. As this situation is expected to remain unchanged for the foreseeable future, entry cannot be timely. Furthermore, even if access to spectrum could be secured, there is significant doubt as to whether scale entry would be commercially viable. To provide choice to all mobile radio customers, the extent of entry would need to be national, and it is doubtful that such an enterprise would be sustainable.
- 136 The Commission therefore concludes that entry on a scale and within a timeframe that would be sufficient to remove dominance concerns is unlikely.

### Conclusion on Dominance in the National Market for TMR Network Services

- 137 The proposed acquisition by TeamTalk of Telecom's national trunked mobile radio services would lead to a level of aggregation well in excess of the Commission's safe harbour guidelines.
- 138 Products such as cellular, and potentially satellite, will provide some constraint on the combined entity, and the degree of constraint may increase over time. However, the exact nature of this evolution over time depends heavily on the business strategies pursued by both cellular and satellite operators. The Commission is not in a position to speculate on such issues.
- 139 The Commission understands that there are customers for whom mobile radio will be the preferred solution, both on functionality and economic grounds, at least for the next two to three years.
- 140 The Commission therefore concludes that it is not satisfied that the proposed acquisition would not result, or would not be likely to result, in any person acquiring or strengthening a dominant position in the national market for trunked mobile radio services.

**DETERMINATION ON NOTICE OF CLEARANCE**

141 Accordingly, pursuant to section 66(3)(b) of the Act, the Commission declines to give clearance for the proposed acquisition by TeamTalk Limited of the Paging services, Private Mobile Radio, Trunked Mobile Radio and related equipment leasing businesses of Telecom New Zealand Limited.

Dated the 3<sup>rd</sup> day of December 1999

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M J Belgrave  
Chairman

## Abbreviations

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AMPS	Advanced mobile phone system – a technical standard for cellular mobile telephone systems.
CDMA	Code division multiple access – a digital voice transmission which is ‘spread’ over a much wider bandwidth by coding each bit with a sequence of many more bits in a pseudo random pattern. Adopted by at least two major cellular operators in the USA. Adopted as interim standard IS-95 by TIA in mid-1993. Likely to be used by any new operators in the 800 MHz band.
CSP	Carriage service provider.
CTIN	Centre for Telecommunications Information Networking.
D-AMPS	Digital AMPS (known as TDMA in the USA) – Uses time division multiple access technology which allows several conversations to share a single radio channel by each transmitting digitised voice within its allocated timeslot.
DCS 1800	Digital cellular system at 1800 MHz (GSM extension), also known as half rate GSM for local loops.
DECT	Digital European cordless telephony standard based on the Ericsson DCT900 aimed at providing a cordless telephone service. Uses TDMA and can hand over calls between cells. Is similar to digital cellular but optimised for an office environment compared to cellular’s optimisation for mobile and wide coverage.
GEO	Geo-stationary orbit (in reference to a satellite).
GSM	Global system for mobile communications (or group special mobile) – a technical standard for digital cellular mobile telephone systems. GSM uses a smart card, or subscriber module (SIM) for subscriber identity and billing purposes. Utilises TDMA system.
LEO	Low earth orbit (in reference to a satellite).
LMDS	Local multipoint distribution services.
PACTS	Public access cordless telecommunications services
PCS	Personal communication services. Radio communications that encompass mobile and ancillary fixed communications that provide services to individuals and businesses and can be integrated with a variety of competing networks.
PHS	Personal handy phone system.

PMR	Private mobile radio services.
PSTN	Public switched telephone network – the switched telephone network to which public customers are connected.
TDMA	Time division multiple access – allows several conversations to share a single radio channel by each transmitting digitised voice within its allocated timeslot. Used by GSM and DAMPS, JDC, DECT and DCS 1800 based PCN. Generally referred to as D-AMPS in New Zealand.
TMR	Trunked mobile radio

## **GLOSSARY**

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Analogue	The term used to describe the continuously variable wave-form nature of voices and other signals.
Bandwidth	The range of frequencies which an analogue transmission medium is capable of carrying, expressed in Hertz (cycles per second).
Base station	Radio transmitter and receiver used for transmitting and receiving calls to or from mobile telephones or radios in a particular coverage area.
Cellular mobile	Mobile telephone system in which the coverage area is divided up into a large number of small areas, each of which had its own base station.
Digital	The representation of a signal in the form of a stream of binary numbers rather than as an analogue electrical signal.
Hertz	Measurement in cycles per second, of the pitch or frequency of wave-form.
Mobile telephones	Telephones which are not fixed and which communicate with the network by transmitting radio signals.
Radio transmissions	Transmission of information in the form of radio waves, without the need for a physical cable.