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20 August 2008

Commerce Commission
Attention Tom Forster
P.O. Box 2351
WELLINGTON 6140

Dear Sir,

Draft Standard Terms Determination for the specified service Co-location on cellular mobile transmission sites

Please find attached TeamTalk Limited's submissions on the Draft Standard Terms Determination for the specified service Co-location on cellular mobile transmission sites, issued on 25 July 2008.

TeamTalk is a Network Operator and operates a variety of radio networks, some with national coverage and others with only local coverage. To support these radio networks, TeamTalk operates over 260 radio sites, many of them being co-located with other Network Operators. We also have other parties co-located on our own sites. From this experience, we are therefore well qualified to comment on Co-location proposals and issues such as these.

Yours Faithfully,

A handwritten signature in black ink, appearing to read 'Bruce Harding', is written in a cursive style.

Bruce Harding
Chief Technology Officer
TeamTalk Ltd.



TeamTalk Ltd

**Submission on
Draft Standard Terms Determination
for the specified service Co-location on
cellular mobile transmission sites**

20 August 2008

1. INTRODUCTION

- 1.1 TeamTalk welcomes the opportunity to comment on the Commissions draft Standard Terms Determination (STD) for the specified service Co-location on cellular mobile transmission sites.
- 1.2 TeamTalk does not consider itself to be a cellular network operator, although we operate on many sites that have existing cellular facilities on them. The mobile radio network market is significantly different to the cellular market, the technology is very different and the scale and resources of mobile radio network operators is on a different scale to the cellular operators.
- 1.3 Because radio base station sites are often shared, it is imperative that industry standards regarding interference are adhered to. Many customers using mobile radio services are involved in public safety or use the service for mission critical applications and no level of interference would be tolerated.
- 1.4 Because we do not consider that TeamTalk should be included as an Access Provider, we have confined our comments to items of direct interest; the definition of “Cellular mobile telephone service”, the determination of TeamTalk as an Access Provider, and Interference Management.

2.0 Definition of “Cellular mobile telephone service”

- 2.1 TeamTalk understands that the proposed definition of “Cellular mobile telephone service” (Clause 68) was proposed by Vodafone in their proposed STP. We have also noted the submissions from Kordia and Callplus warning that care should be taken to not unnecessarily or unduly narrow the scope of the Mobile Co-location Service to avoid limiting applications and future technologies.
- 2.2 The Commission in Appendix B, section B3 has compiled an indicative list of the current technologies that it considers have the characteristics of a cellular mobile telephone network, and the last technology listed is PMR (Private Mobile Radio). PMR is a very general term and includes many technologies such as P25, TETRA, MPT1327, DMR (Digital Mobile Radio), Smartnet, EDACS, Bluesky, Mototurbo to name just a few. Some of these may fit the proposed definition of “Cellular mobile telephone service”
- 2.3 Although some of the PMR technologies may fit the proposed definition of “Cellular mobile telephone service”, in reality the PMR service is radically different to a cellular service, both in scale and infrastructure. Some of these differences are listed in the table below.

Cellular	PMR
Mass market product, customer numbers in millions.	Niche market product, customer numbers in hundreds or thousands.
Connections are individual, although may be billed in corporate plans	Connections are by fleet
Primary mode of operation is full duplex voice, with broadband data as an addition.	Primary mode is push to talk half duplex voice, with low speed data and niche applications as an addition
Call Set-up speed is relatively slow.	Call Set-up speed is fast < 1 second
In populated areas, cellular uses many sites at low altitude, with significant frequency reuse.	In populated areas PMR uses few sites at relatively high altitudes with no frequency reuse in the local area.
Operates in radio spectrum subject to auctioned Management Rights.	Operates in radio spectrum subject to annual radio licences.
Cellular coverage is largely ubiquitous	PMR coverage tends to be tailored to customers requirements.

- 2.4 The proposed definition of “Cellular mobile telephone service” is detailed in Clause 68. The term “service area” is used several times but is not defined. Service area could be a population area such as Auckland or Hamilton, or all of New Zealand. To cover a service area such as Auckland, a cellular system will require some hundreds of cellsites whereas a PMR system will cover much the same area with 6 – 10 high altitude base station sites. Cellular systems are generally designed around a recognised cellular pattern with a regular regime of frequency reuse algorithms. PMR systems do not follow a regular cellular pattern, frequencies are not generally re-used within a population based service area, but are re-used in various locations around New Zealand depending on geographic locations of particular base stations. Depending on the understanding of “service area” PMR systems would either be included or excluded in Subsection (b) (ii) and (iii)
- 2.5 The requirement to include intercell hand-over described in Subsection (iv) would exclude most PMR systems. However there is a digital PMR technology known as TETRA, conforming to a European ETSI specification, that is being planned by several New Zealand companies, that does provide a hand-over facility and full duplex telephone interconnect as an additional feature to the standard push to talk voice. This technology is still of the scale and application of other PMR systems and has not been designed to replicate cellular systems, but would probably be included within the proposed definition of “Cellular mobile telephone service”.
- 2.6 TeamTalk considers that the term PMR should be removed from the list of technologies considered to have the characteristics of a cellular mobile telephone as it is not a technology, but describes a type of radio service, employs a totally different architecture, and is on a different scale to cellular systems.
- 2.7 The Commission’s own analysis in Determinations 377 and 393 makes it clear that PMR and Cellular are separate markets.

- 2.8 TeamTalk has considered the wording of the proposed definition for “Cellular mobile telephone service” and the submissions already received by the Commission on the topic. We recognise the need to keep the definition wide to include future technologies, but in its present form, it is likely to attract other technologies of a much lesser scale and with insufficient resources to comply with the obligations of the proposed Determination. To keep the determination within the recognised cellular market, TeamTalk proposes the following additional clause to the definition;

(v) Operates in radio frequency bands approved by the Ministry of Economic Development for Cellular mobile telephone service.

3.0 Determination of TeamTalk as an Access Provider

- 3.1 TeamTalk notes from Appendix B, Eligibility of Access Seekers And Access Providers, Subclause B13, that the Commission considers that the APCO-25 network operated by TeamTalk complies with the definition of a “Cellular mobile telephone service”. However the APCO-25 technology does not provide any hand-over facility and therefore falls outside the proposed definition of a “Cellular mobile telephone service”. Accordingly TeamTalk should be removed from the list of Access Provider eligibility in table 1 of Clause 96.

4.0 Interference Management

- 4.1 Many of the cellsites presently used, especially in the case of Telecom, are co-located on sites used for PMR base station sites and Fixed Links. Therefore any interference management parameters must consider the effect on those services that are already in place.
- 4.2 It is noted that the Commission has already included a requirement under Clause 242, Unacceptable Performance Degradation, “ a total level of loss of more than 0.2dB from either the uplink budget or the downlink budget of any Antenna solely dedicated to provision of Emergency Services.”. However many of the antennas on a site are used by other commercial services for mission critical operations and they need to be protected in the same way as emergency services. Many of these commercial services are used by public utilities, local bodies, Government organisations and security services who may face severe penalties if their systems are compromised.
- 4.3 Most of the existing commercial services employ analogue systems and the interference may produce only minor degradation in terms of signal level, but may produce significant audio interference in the dispatch operators loudspeaker or headphones. It would be unacceptable for an operator to have to listen to the effects of interference for protracted periods. Therefore a measurement based solely on signal strength or path loss is likely to be inadequate.

- 4.4 It is recognised that it is difficult to define all forms of interference in absolute terms. Therefore TeamTalk suggests that item 3 in Clause 242 be amended to ;
- a total level of loss of more than 0.2dB from either the uplink budget or the downlink budget of any Antenna dedicated to provision of Emergency Services or commercial communication services or produces an ongoing audible irritation to an end user.

5.0 Conclusion

- 5.1 The purpose of the STD is to foster competition in the cellular market.
- 5.2 This is required because the nature of Cellular services is such that that competition for scarce resources like spectrum and sites is fierce. A difference of a few hundred metres in Cellular site location can make a huge difference in performance.
- 5.3 PMR does not have these issues.
- 5.4 TeamTalk does not operate a Cellular network as defined in the draft STD. Therefore we should not be classified as an Access Provider or an Access Seeker.