



8 September 2008

BY EMAIL

The Commerce Commission
PO Box 2351
WELLINGTON 6140

Attention: Matthew Bailey

CROSS-SUBMISSION ON DRAFT MOBILE CO-LOCATION STANDARD TERMS DETERMINATION

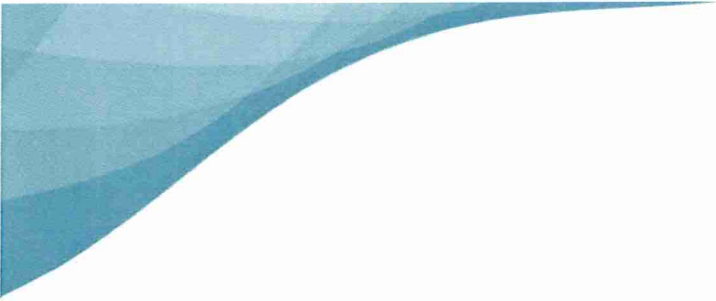
1. Kordia refers to the Commission's invitation to cross submit on the submissions the Commission has received from parties on its draft Standard Terms Determination for the Mobile Co-location Service. Kordia now cross submits on the issues of:
 - a) Greenfield sites; and
 - b) Interference management.

Greenfield Sites

2. Kordia wishes to clarify its position on the application of Part 3 of Schedule 1 of the Telecommunications Act 2001 (Act) to Greenfields Sites (currently defined in clause 12.2.1 of the Mobile Co-location Operations Manuals).
3. Each of Telecom and Vodafone take the view that Greenfields Sites fall outside the definition of Relevant Facilities under the Act, because a relevant facility must be one which is used for the transmission and reception of telecommunications via a cellular mobile telephone network. Accordingly, the specified service under the Act only applies to Relevant Facilities that are in existence (i.e. a site that has not yet been built cannot be said to be used for transmission and reception).
4. Kordia agrees with Vodafone and Telecom's statutory interpretation. However, Kordia's submission is that the issue that needs to be addressed by the STD is not whether it applies to Relevant Facilities that are not yet in existence, but that both the Act and the STD need to apply as soon as the Relevant Facilities are used for the transmission or reception of telecommunications via a cellular mobile telephone network.
5. Given the fact that each of Vodafone and Telecom rolled out cellular mobile telephone networks before there was any regulation of co-location on the transmission sites, the STD has been directed at co-location on pre-existing transmission sites of Access Providers (i.e. operators of cellular mobile networks).
6. However, any new Relevant Facilities that are built by the Access Provider that are used for the transmission or reception of telecommunications via a cellular mobile network will be subject to the specified co-location service as soon as the Relevant Facilities are used by the Access Provider.


KORDIA™ NEW ZEALAND LIMITED

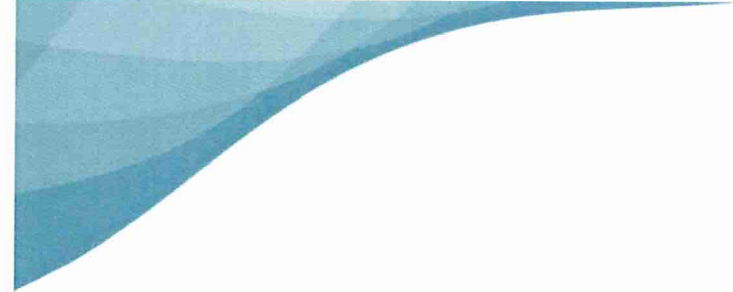
Level 4 | Fidelity House | 81 Carlton Gore Road | Newmarket | Auckland 1023
P O Box 2495 | Auckland 1140 | New Zealand
T. +64 9 916 6400 | F. +64 196 6403 | W. www.kordiasolutions.com

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7. The STD would be deficient if it did not provide for regulation to be effective as soon as the Relevant Facilities are used for the transmission or reception of telecommunication via cellular mobile telephone networks.
 8. The Act does not support an interpretation that allows for the building of new Relevant Facilities, which does not comply with the Act or the STD as soon as the Access Provider commences using those facilities in circumstances where the Act applies.
 9. Consequently, the focus should not be on whether a Greenfields site can be regulated when it is not yet used by the Access Provider, but rather that the Greenfields site is built so that it complies with the Act and the STD when use commences.

Interference Management

10. In its main submission dated 22 August 2008 (Vodafone's Submission), Vodafone puts a case for shrinking the threshold for Unacceptable Interference from 1.0dB to 0.5dB. (see paras 8 and 10).
11. In the first bullet point of paragraph 20 of Vodafone's Submission, Vodafone quantifies possible negative impacts resulting from the 1.0dB loss in Link Budget:
...could lead to approximately 2,600 rural VFL customers... being left without mobile network coverage...
12. This may be misleading. A 1.0dB loss of Link Budget (which Kordia defines as a 1.0dB increase in Receiver Noise floor) would lead to a reduction in coverage radius from a cell site that:
 - a) Has another mobile operator co-locating; and
 - b) The Access Seeker is causing interference up to the maximum permitted level.
13. Such reduction in cell radius would affect the "area availability" of the service, but not leave 2,600 rural customers without mobile network coverage. Vodafone's claim seems to be an exaggeration.
14. The second bullet point in paragraph 20 of Vodafone's Submission better describes degradation of service. At edge of coverage, for high speed data rates, customers can experience a drop in data rates of around 11%.
15. This drop in data rate would be barely perceptible by most customers as only mobile telephone users on the very fringe of network coverage areas are likely to notice the effects of a 1dB reduction in a provider's Link Budget. Users in such areas may already suffer considerable inconsistency in the quality of their mobile telephone services.
16. Vodafone lists (qualitatively) the factors that would suffer additional incremental losses from a 1.0 versus 0.5dB Link Budget loss at paragraph 21 of Vodafone's Submission (This is cross referenced back from paragraph 36 of Vodafone's Submission. See our comments at paragraph 19 below.)
17. Vodafone gives some useful statistics to quantify the number of rural emergency calls that would be dropped from Vodafone's network at paragraph 25 of Vodafone's Submission. (Note the statistics in Telecom's corresponding paragraph 58 of Telecom's main submission refer to a different baseline, i.e.:
 - a) All of NZ, not just rural, and
 - b) mobile emergency calls on all mobiles, not just one operator's GSM network.
 - c) per year, not per month.)

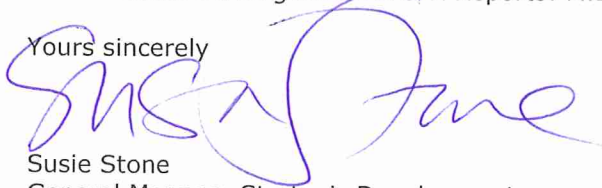
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18. Of Vodafone's 1,800 Emergency Service calls on GSM in Rural areas, per month, 40 customers per month could be impacted. This is 1 rural customer in 45, or approximately 2.5%.
19. In the last sentence of paragraph 36 of Vodafone's Submission, Vodafone compares 0.5dB with 1.0dB loss of Link Budget. Whereas in paragraph 25 of Vodafone's Submission indicates that approximately 2.5% of rural Vodafone customers on GSM have the potential to be impacted when making Emergency Service calls, paragraph 36 says this is double the number that would be likely to be impacted for a 0.5dB Link Budget degradation.
20. Vodafone argues at paragraphs 39 to 41 of Vodafone's submission that Kordia's proposed 1.0dB is equivalent to 0.51dB degradation in Link Budget. The argument is not made very clearly, and could lead to confusion.
21. Paragraph 40 of Vodafone's Submission refers to ITU-R Report M.2030, which was one of the references in Kordia's 26 May 2008 submission. In Kordia's 22 August submission, we refer in s9.6 to ITU-R Report M.2039, which makes clear that 1.0dB is the industry standard for acceptable interference to IMT-2000 mobile networks.
22. Vodafone points out that the ITU-R Report M.2030 proposes a 1.0dB increase in Noise Floor, and does not propose a 1.0dB degradation in Link Budget. This point depends on how one chooses to define the loss in Link Budget. M.2039 also defines the 1.0dB threshold as an increase in Receiver Noise Floor.
23. In Kordia's submission of 22 August, we attempt to clarify that the 1.0dB Link Budget loss should be calculated relative to base station receiver noise floor N:
- $$[N + I(ext)] / N$$
- (receiver thermal noise (kTBF) + external interference) / (receiver thermal noise)*
24. Vodafone's argument in paragraph 40 is that Kordia's 1.0 dB is equivalent to 0.51dB loss in Link Budget. Vodafone refers to a complete set of calculations that results from including Internal Interference (I(int)) that is received from other transmitters in the mobile operator's own network. The mobile network design generally plans to have I(int) at a similar power level to the receiver thermal noise (N). Hence Vodafone's calculations are based on a 0.51dB threshold resulting from the following ratio:
- $$[N + I(int) + I(ext)] / [N + I(int)]$$
25. Vodafone's inclusion of I(int) in the ratio, effectively "dilutes" Kordia's 1dB ratio, to 0.51dB. We choose to clarify in our submission that I(int) should be excluded from the calculation. This is because I(int) varies from one network design to another, and varies with time, and consequently would be a source of debate, confusion and delay.
26. If Vodafone interprets Kordia's 1.0dB Receiver Noise Floor degradation to be the same as their 0.51dB Link Budget loss (when I(int) is included), then Vodafone's argument for a 0.5dB Link Budget loss throughout the rest of Vodafone's (and Telecom's) submission is tantamount to a 0.51dB Link Budget loss, provided that the host network operator's internal interference (I(int)) is included in their Link Budget calculation. Further, this is the same as Kordia's 1.0dB Receiver Noise Floor degradation, provided that I(int) is excluded from the ratio.
27. Accordingly it follows that Vodafone's and Telecom's arguments for 0.5dB Link Budget loss are the same as Commerce Commission 1.0dB Link Budget Loss, and Kordia's 1.0dB Receiver Noise Floor degradation provided that I(int) is included in Vodafone's and Telecom's calculation, and excluded from the Commission's and Kordia's. Vodafone



effectively states the foregoing in paragraph 41 of Vodafone's Submission but does not make the clarification about the inclusion or exclusion of Internal Interference.

28. Explicitly excluding Internal Interference from the calculation and using 1.0dB has the benefit of avoiding a variable quantity that is subject to the whim of the network designer and subject to variation with traffic loading. Furthermore, 1.0dB aligns with industry standard as given in ITU-R Reports: M.2030 and M.2039.

Yours sincerely



Susie Stone
General Manager Strategic Development
Kordia Group Limited