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October 12, 2004

Via ECFS

Ms. Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Re: Written Ex Parte Presentation in WT Docket No. 04-70

Dear Ms. Dortch:

On behalf of QUALCOMM Incorporated (“QUALCOMM”), I am submitting this filing to provide answers to five questions that Ziad Sleem of the Wireless Telecommunications Bureau posed to me on October 7, 2004 concerning CDMA2000 1x technology, apparently relating to the above-referenced proceeding. Mr. Sleem’s questions and QUALCOMM’s answers are set forth below.

Q1. At a CDMA2000 1x base station, what is the average number of erlangs that can be provided for voice traffic, assuming no data traffic?

A1. For today's CDMA2000 1x networks, the answer is 26 Erlangs per sector per 1.25 MHz in a fully and uniformly loaded 3-sector network. However, the voice traffic capacity of a CDMA (cdma2000 or WCDMA) network can be doubled to support an average load per sector of 52 Erlangs (normalized to 1.25 MHz of paired bandwidth, or 2.5 MHz total). This improvement can be achieved with handsets supporting dual-receive antennas and BTS's equipped with quad-receive diversity antennas. CDMA handsets supporting dual-receive antenna processing have been introduced commercially in Japan in August 2004, and they are expected to become mainstream in the near future. Network equipment supporting quad-receive processing is already commercially available, allowing a variety of BTS antenna array configurations, e.g. a pair of cross-polarized antennas.

Q2. What is the maximum number of users that can be supported at that 1x base station for the average number of erlangs referred to in question 1, above?

A2. For today's 1x networks, 35 simultaneous users per sector can be supported given average load of 26 Erlangs, which assumes a 2% blocking (98% success rate of receiving a channel) per the Erlang-b formula. Typically, traffic modeling would assume 30-40 milli-Erlangs/subscriber. Using that assumption, one would take the 26 Erlangs and divide it by the 30-40 milli-Erlangs/Subscribers which would result in approximately 650 to 860 users/sector/1.25 MHz carrier (paired for 2.5 MHz total). In the future, based on the diversity

mentioned in A1, the number of subscribers supported would grow to about twice this value.

Q3. How many carriers would an operator typically use per site?

A3. This is highly non-uniform throughout any given operator's network and depends on traffic demand in any given geographical region. In the busiest cells of the busiest markets even more than 4 RF carriers per sector have been deployed.

Q4. How long does it typically take to add a 64 channel card to an existing radio bay—that is to test it, optimize it, etc.?

A4. CDMA2000 1x technology is designed to permit operators to add channel cards (to add voice capacity to existing RF carriers) as quickly and as easily as possible because the added hardware is minimal. This design permits operators with CDMA2000 1x networks to add voice capacity very quickly to respond in short order to the demands of a competitive wireless market. The precise time for any particular operator would depend on the sophistication of the particular OA&M implementation of the infrastructure. For more details, the Commission may wish to pose this question to one or more of the companies that supply CDMA2000 1x infrastructure.

Q5. How long does it typically take to add an RF channel?

A5. As stated in the prior answer, CDMA2000 technology is designed to permit operators to add an RF channel as quickly and as easily as possible because the added hardware is minimal, and this design allows operators with CDMA2000 1x networks to add channels very quickly to meet the demands of a competitive wireless marketplace. The precise time for any particular operator would depend on the sophistication of the particular OA&M implementation of the infrastructure, especially whether new or additional antennas and/or cabling would be needed at the base station in question. For more details, the Commission may wish to pose this question to one or more of the companies that supply 1x infrastructure.

I am filing this letter via ECFS.

Respectfully submitted,

/s/ Dean R. Brenner

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Ziad Sleem