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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 Nos. 02-381, 01-14, 03-202, & 03-264

Dear Ms. Dortch:

This is in response to a June 29, 2004 filing in the above-captioned dockets by Ericsson in which Ericsson claims that a PCS base station power limit based on EIRP per MHz would not be technology neutral because it would reduce the EIRP of narrowband technologies (presumably GSM and TDMA) below the current limit of 1640 Watts EIRP and argues that the “negative impact to existing and future systems and the industry that supports narrowband technologies would be substantial.” Ericsson Ex Parte at Pg. 2. Ericsson asks the FCC to adopt two-tiered PCS base station power limits: “6560 watts /MHz EIRP per carrier for carriers greater than 1 MHz; and, 6560 watts EIRP per carrier for carriers 1 MHz or less.” Id.

In its Comments and Reply Comments filed in the Biennial Review Harmonization Proceeding, QUALCOMM showed that a limit of 5040 Watts EIRP/MHz would be technology neutral since it would regulate total power per MHz without distinguishing between base stations based on the air interface used, as opposed to a per carrier limit, which would discriminate against CDMA and WCDMA networks that use carriers with wider bandwidths (and thus fewer carriers per MHz) than GSM and TDMA networks. In addition, QUALCOMM showed that its proposed limit would address the Commission’s regulatory concern to prevent harmful interference since it would limit total power per MHz radiated from a base station, as opposed to a per carrier limit which would not address harmful interference since it would only limit power per carrier for an unknown number of carriers per MHz.

A two-tiered set of power limits such as the ones that Ericsson has proposed would allow GSM and TDMA base stations to operate at greater total power per MHz than CDMA and WCDMA base stations since GSM and TDMA networks use more carriers per MHz than CDMA and WCDMA networks. Ericsson’s proposed two-tiered limits would also allow GSM and TDMA base stations to operate at greater power than future wider bandwidth technologies for the same reason. As a result, Ericsson’s proposed limits are not technology neutral on their face or in fact.

By contrast, QUALCOMM's proposed limit of 5040 Watts EIRP/MHz, measured in 1 MHz, is technology neutral on its face and in fact. QUALCOMM explained at page 8 of its Comments in the Biennial Review Harmonization Proceeding that WCDMA, GSM, and TDMA networks would not be disadvantaged with the proposed limit of 5040 Watts EIRP/MHz:

“No air interface would be disadvantaged with such a limit. For example, for a WCDMA network, since it uses more than three times the bandwidth per carrier as compared to a CDMA network, a WCDMA network would get three times the power per carrier. GSM networks would also fare well with this limit. A GSM network could use all 5040 Watts EIRP on one carrier using 1 MHz, or use microcells with a minimum possible frequency reuse of 1, at a per carrier power of 1008 Watts.

Moreover, networks using the narrower bandwidth technologies, such as TDMA, would not suffer in any way with this limit. These networks could all continue to operate their multiple carriers per MHz, with the 5040 Watts EIRP/MHz divided among the multiple carriers. These networks would not be disadvantaged in any assuming they use normal frequency reuse patterns associated with PCS operations.”

Ericsson has not explained why a GSM or TDMA PCS network would suffer an actual reduction in power from current levels if the Commission adopted QUALCOMM's proposal. QUALCOMM is not aware of a GSM or TDMA PCS network that actually uses, or needs to use, 1640 Watts EIRP per carrier. Assuming 18 dBi of antenna gain, a base station would need to deliver approximately 26 Watts of power to the antenna on each carrier to attain 1640 Watts EIRP per carrier, which is far more than is necessary to close a link to a PCS handset, which operates at very low power.

It may be that some TDMA networks are using adaptive antennas with a gain of greater than 18 dBi to get higher capacity and better performance, and more EIRP is needed as a result. However, CDMA and WCDMA networks, as well as networks based on future wider bandwidth technologies, may also use adaptive antennas, and they, too, may need more EIRP as a result. The technology neutral solution is to increase the EIRP/MHz limit for base stations using all air interfaces, not to favor GSM and TDMA networks by creating a per carrier limit for GSM and TDMA but an EIRP/MHz limit for CDMA, WCDMA, and other future wider bandwidth air interfaces because such a two-tiered set of limits would allow GSM and TDMA base stations to use more total power per MHz than CDMA, WCDMA, and other wider bandwidth base stations.

Similarly, it may be that TDMA networks need EIRP for large cells in rural environments. But, all PCS networks, no matter the air interface, would achieve greater coverage in rural environments using large cells with more EIRP. Again, the technology neutral solution is to increase the EIRP/MHz for base stations using all air interfaces, not to set

a per carrier limit for GSM and TDMA base stations, but an EIRP/MHz limit for CDMA, WCDMA, and other wider bandwidth base stations, which would allow GSM and TDMA base stations to operate at greater total power than base stations CDMA, WCDMA, and other wider bandwidth base stations.

Finally, to the extent that there are base stations deployed today that, for whatever reason, would suffer a reduction in total power from current levels if the Commission were to adopt an EIRP/MHz limit on base station power, the Commission could easily prevent any problem by including a grandfather clause in the new PCS base station power rule to provide that the new rule shall not require that any transmitter operating today within the legal limits reduce its power.

For all of these reasons, QUALCOMM urges the Commission to adopt an EIRP/MHz limit on PCS base station power, which would be technology neutral on its face and in fact and which would allow more effective provision of service by all technologies to rural areas.

I am filing this letter electronically via the Commission's ECFS system.

Sincerely yours,

/s/ Dean R. Brenner

Dean R. Brenner
Senior Director, Government Affairs
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