

August 13, 2004

Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, SW  
12th Street Lobby, TW-A325  
Washington, D.C. 20554

**Re: Ex Parte Presentation  
ET Docket No. 00-258**

Dear Ms. Dortch:

As discussed herein, CTIA-The Wireless Association™ (“CTIA”) is submitting information about existing duplexer designs for PCS handsets, as requested by OET staff. This information was prepared by Agilent Technologies (“Agilent”) and includes clarifications to its presentation on filtering technology that was submitted into the record on August 5, 2004.<sup>1</sup>

The Agilent materials confirm that mobile H block devices must comply with PCS industry standards to prevent interference to PCS A block operations, and indicate that a G-H block duplexer that satisfies the PCS industry out-of-band emissions (“OOBE”) limit of -76 dBm/MHz set forth in TIA 98-F can be manufactured. However, the potential for mobile H block devices to cause “overload” interference to wireless PCS handsets is significant and undisputed.<sup>2</sup> Accordingly, CTIA believes that the H block should not be allocated for a mobile wireless service until testing designed to define the parameters of such interference has been completed and analyzed. CTIA has begun the process of designing and effectuating such tests, and is committed to having these tests completed on an expedited basis.

On July 29, 2004, representatives of CTIA and many of its member companies met with staff from the Office of Engineering and Technology (“OET”) to discuss the potential reallocation of 1915-1920 MHz paired with 1995-2000 MHz for PCS expansion (the so-called “H block”).<sup>3</sup> In that meeting, CTIA expressed its concern that the use of the H block for a mobile wireless service could result in substantial harm to existing PCS operations. Specifically, CTIA explained that:

- The OOBE from a mobile H block device (*e.g.*, handset, PDA, laptop card, *etc.*) would produce substantial and unacceptable interference to the tens of millions of existing PCS handsets unless the FCC requires the H block devices to comply with

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<sup>1</sup> See Letter from Lawrence R. Krevor, Nextel Communications, to Marlene H. Dortch, FCC, filed August 5, 2004 (*Nextel August 5, 2004 Ex Parte*).

<sup>2</sup> See Letter from Paul Garnett, CTIA—The Wireless Association™, to Marlene H. Dortch, FCC, filed July 30, 2004 (*CTIA July 29, 2004 Ex Parte*); *Nextel August 5, 2004 Ex Parte* (see Agilent presentation).

<sup>3</sup> See *CTIA July 29, 2004 Ex Parte* (AT&T Wireless, Cingular, Motorola, Nextel, Qualcomm, Sprint PCS, T-Mobile and Verizon Wireless).

the OOB limits set forth in the PCS industry standards to prevent such interference. All PCS technologies (GSM, cdma2000, UMTS) include these types of limits in their specifications.

- Filter technology used in existing PCS receivers cannot sufficiently attenuate in-band (*i.e.*, fundamental) H block emissions and, thus, existing handsets could be subject to “overload” interference from H block devices under certain conditions that occur in everyday use. Furthermore, this overload condition is capable of impacting PCS receivers operating in *any* of the PCS blocks (A through F) and should not be assumed to only impact receivers in the A block. Unfortunately, this problem cannot be overcome with adherence to PCS industry OOB limits alone.

OET staff asked the industry to provide additional information regarding the potential for interference from H block operations, including information about existing PCS duplexer designs and the capabilities of current filter technology. In response, CTIA member companies contacted Agilent Technologies, a leader in the development and manufacture of radio frequency filters. Agilent developed a presentation on filtering technology and its impact upon the H block interference scenarios. Agilent provided a copy of its original presentation to some CTIA member companies, including Nextel. Nextel filed the presentation along with its interpretation of that presentation on August 5, 2004. Agilent has since clarified its presentation, which is attached to this letter.

Agilent’s presentation and subsequent clarification support CTIA’s view that it is not feasible to manufacture a “full-band” duplexer for use in the PCS band that meets the OOB interference criteria established and used by the industry – and required for today’s PCS handsets to function correctly – if the separation between the PCS transmit and receive bands were only 10 MHz. Agilent’s presentation further concludes that it is possible to manufacture a “partial-band” duplexer that would allow operation throughout only the G (1910-1915/1990-1995 MHz) and H blocks and that would meet the industry’s current interference criteria, *i.e.*, an OOB limit of -76 dBm/MHz. Agilent’s presentation also supports CTIA’s view that receiver filters used in existing PCS handsets are inadequate to prevent “overload” interference from mobile H block devices in instances where certain circumstances converge.

CTIA contacted Agilent to seek clarification of certain aspects of its presentation submitted on August 5th. In response, Agilent provided the following clarifications (contained on page 2 of the attached presentation). In particular, Agilent clarifies that:

- A G-H block duplexer can be manufactured that would allow a G-H block handset to comply with the industry OOB limit of -76 dBm/MHz into the PCS receive band as set forth in TIA 98-F;
- The analyses in Agilent’s presentation assumed compliance with current industry interference criteria; and
- The “overload” condition of the receiver operating at full sensitivity occurs not just at the edge of a cell site, but also anywhere low signal conditions occur, such as in buildings, RF shadows, *etc.*

One should not simply assume that the factors that would create an “overload” interference scenario are unlikely to occur simultaneously. As an initial matter, the areas where an interfering phone is likely to be transmitting at its highest power level are also the same areas where one would expect receivers to be operating at, or near, their designed sensitivity. Moreover, such areas are not merely the edge of cell coverage, but include, as Agilent points out, in-building operations and anywhere else that low signal conditions occur. Consequently, there is a strong correlation between “maximum transmit power” and “minimum receive power.” Further, the proliferation of wireless phones and their increasing use in numerous conceivable settings – such as train stations, buses, convention centers, lobbies, stadiums, concert venues and numerous other settings in which people congregate – makes the probability very high that two phones will be used in close proximity to one another.

Given that the potential for overload interference to occur when a mobile H block device is operated in close proximity to a wireless PCS handset is undisputed, CTIA believes that testing is required to confirm the scope and nature of such interference and to allow for reasoned decision-making on this crucial issue. The importance that PCS customers place on reliable communications and the importance that these communications play in our nation’s economy and in public safety demand no less. To that end, CTIA has developed a test plan and is in the process of securing independent test services to ensure that the overload (and OOB) interference potential is fully understood. We plan to meet with OET staff in the near future to discuss the details of that test plan.

In summary, the Agilent presentation and clarification confirm that (a) mobile H block devices must comply with PCS industry standards to prevent interference to PCS operations, (b) it is feasible to manufacture a G-H block duplexer that satisfies the PCS industry OOB limit of -76 dBm/MHz set forth in TIA 98-F, and (c) there is a significant potential for “overload” interference from operations of H block devices affecting consumers’ wireless phones. Testing of the interference potential from H block operations is critical to a full understanding of this problem and CTIA has already taken steps to commence this testing. CTIA will continue to advise the Commission of developments as they occur.

Pursuant to Section 1.1206 of the Commission's Rules, please include this letter and attachment in ET Docket No. 00-258. If you have any questions concerning this submission, please contact the undersigned at 202-785-0081.

Sincerely,

*/s/ Paul Garnett*

Paul W. Garnett

CC: Bryan Tramont  
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Enclosure