

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)
)
Section 68.4 of the Commission's Rules)
Hearing Aid-Compatible Telephones)

RM No. 8658

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JUL 17 1995

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

OPPOSITION OF GSM MOU ASSOCIATION

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GSM MoU Association ("GSM MoU") hereby opposes the Petition for Rulemaking filed in the above-captioned proceeding by Helping Equalize Access Rights in Telecommunications Now ("HEAR-IT NOW"). HEAR-IT NOW's petition requests that the Commission initiate a rulemaking proceeding to amend the exemption contained in section 68.4(a) of the Commission's Rules to require that broadband PCS devices capable of voice transmission or reception be hearing aid-compatible. As set forth below, inter-industry efforts already are underway to deal with the issue. The Commission thus should deny the petition and decline to initiate the requested proceeding.

INTRODUCTION AND SUMMARY

HEAR-IT NOW's petition asks the Commission to hold a rulemaking proceeding to require all PCS devices to be "hearing aid-compatible." In particular, the petition focuses on a PCS operating system called the Global System for Mobile Communications ("GSM").^{1/} Petitioner urges the Commission to delay, if not altogether

^{1/} GSM systems use a modulation standard known as Time Division Multiple Access ("TDMA"). Other PCS operating systems include Code Division Multiple Access

(continued...)

prohibit, the implementation of GSM in the United States in light of exaggerated assertions as to the experiences of hearing aid users with that operating system in Europe and Australia, and unsupported -- and insupportable -- allegations that every single hearing-impaired person in the United States will be precluded from using PCS devices unless the Commission acts promptly. (Pet. at 1.)

GSM MoU, a Swiss corporation, is a worldwide association of 126 wireless telephone operators and 12 administrations from 77 countries around the world. These countries represent a combined population of over 3.5 billion persons. Today, the association's operator members provide GSM service to over seven million subscribers in both western and eastern Europe, large municipalities in the former Soviet Union, Asia and the Pacific Rim, Africa, and the Arab countries. Several U.S. wireless telephone operators, such as US West, AirTouch Communications, AT&T McCaw, and BellSouth, also participate in the association's activities, either as investors or operators of GSM cellular service; AT&T and Motorola are among major GSM suppliers to the organization's members.

GSM MoU supports the continued use of GSM technology and seeks to further the implementation and development of this global mobile standard to make it widely available to all segments of the world population, including the hearing-impaired. As a result of the concern that all digital telecommunications equipment potentially interferes with

^{1/}(...continued)

("CDMA") (IS-95) and up-banded D-AMPS (IS-136). Although HEAR-IT NOW concentrates in its petition on GSM systems, the petition also apparently attempts to raise concerns with respect to all PCS operating systems. Indeed, the eight-page petition does not even mention GSM until page 4.

certain hearing aids, the association's members have participated in numerous studies to investigate incompatibility claims between GSM and hearing aids, and the association itself is deeply involved in efforts to address this issue. GSM MoU is participating in this proceeding to correct petitioner's misstatements in the record of this proceeding about the experiences of hearing aid users in Europe and the Pacific Rim with respect to interference from the GSM systems in operation there, and to support the prompt deployment of GSM systems in the United States.

HEAR-IT NOW has not shown any basis for mandating that broadband PCS devices be redesigned to meet hearing-aid compatibility requirements. First of all, petitioner's characterization of the European and Pacific GSM experiences that it asserts support its claims are not accurate. In fact, those experiences demonstrate that, even at two to four times the power levels that operators will use in the United States, and at lower frequencies, GSM telephones generally have caused interference only to those hearing aid users who wear older, inadequately shielded devices. Second, petitioner has not satisfied the legal standard set forth in the Hearing Aid Compatibility Act of 1988^{2/} and the Commission's implementing regulations^{3/} for requiring the Commission to modify its rules. Third, to the extent that there is a potential problem with electromagnetic incompatibility, the Commission should give the affected industries and consumer groups an opportunity to continue the work already started to reach a mutually acceptable solution, instead of imposing regulatory burdens that will impede the long-awaited deployment of PCS

^{2/} 47 U.S.C. § 610(b).

^{3/} 47 C.F.R. §§ 68.4, 68.5.

technology in the United States. The Commission therefore should deny HEAR-IT NOW's petition and decline to hold the requested rulemaking proceeding.

I. GSM SYSTEMS IN EUROPE AND THE PACIFIC RIM HAVE NOT CAUSED SERIOUS ELECTROMAGNETIC INCOMPATIBILITY PROBLEMS FOR HEARING AID WEARERS.

Petitioner errs in urging that the European and Pacific experience with GSM systems demonstrates that GSM is incompatible with hearing aids. To the contrary, in Europe, where the first commercial digital networks employing GSM technology were established in 1992, the evidence clearly shows that GSM devices have not caused serious incompatibility problems with most hearing aids. In fact, GSM systems currently are in operation in 77 different countries,^{4/} without the catastrophic results that petitioner claims.

As petitioner fails to note, all electronic devices, such as hearing aids and personal audio equipment, potentially are subject to electromagnetic interference from digital equipment due to the pulsed nature of digital transmissions. Indeed, hearing aids interact with a large number of electromagnetic devices, including airport electronic security systems, video display terminals, and fluorescent lights, as well as with GSM and other wireless systems. Over time, however, technological improvements in electronic devices, such as proper shielding, protect them from the effects of various digital transmissions while also

^{4/} With the exceptions of Japan, which has developed its own digital operating standard, and countries in North and South America, every country that has selected a standard has selected GSM. In the United States, GSM also has interim approval as a PCS standard, and American Personal Communications, a member of GSM MoU, has plans to deploy a GSM PCS system in the United States later this year. In addition, narrowband PCS auction winners BellSouth, Pacific Bell, Micro-Cell One-2-One, and GO Communications have announced that they have selected GSM for their planned PCS systems.

improving their performance in the vicinity of other potentially interfering electrical or electronic devices.

Petitioner inaccurately characterizes the evidence of the interference to hearing aids from European and Pacific Rim GSM systems. In fact, that interference has been far less severe than the interference that other digital devices cause to hearing aids. As one commentator has explained, the 4 volts per meter field strength at which European hearing aids detect interference from GSM phones is substantially less than the field strengths that other digital devices produce:

Hearing aid users are not unfamiliar with interference problems. Interference caused by florescent lights is in fact generally worse than interference from GSM phones. But it was concluded that hearing aid users would be unable to use GSM phones -- a conclusion that in practice has been found to be often incorrect.

. . . . [F]ield strengths of 5 V/m can be generated by interior electronic wiring, a hair dryer produces around 50 V/m and an electronic razor 100 V/m. Overhead power line[s] generate field strengths in the region of 100 V/m and electric fields during thunderstorms produce[] up to 20,000 V/m.^{5/}

Moreover, European GSM service providers and regulators have received very few, if any, complaints that GSM systems have interfered with hearing aids or caused inconvenience to hearing aid users. Reported hearing aid interference has been limited to older, poorly shielded units. For example, as Ole Mørk Lauridsen, Director of Telelaboratoriet for Telecom Denmark, recently stated:

^{5/} Stuart Sharrock, "Interference and Radiation Risks: Are They a Threat to Growth," Paper presented at GSM World Congress, at 9 (Madrid, Feb. 7-9, 1995).

[L]et me first of all clearly state that GSM telephones, hearing aids, and all other electronic and electrical equipment which meet the European Union EMC directive, 89/336/EEC, can operate simultaneously without interference from each other. This means that hearing aid users can successfully and comfortably use a 2 watt, handhold GSM telephone in conjunction with a hearing aided ear without interference. The only interference my laboratory has ever reported has been between old, inferior quality hearing aids located within three feet[] or less of a handhold GSM telephone operating at its maximum power level of 2 watts. . . .^{6/}

Dr. Lauridsen went on to note that, even though over 250,000 subscribers, or 4.8% of the population of Denmark, had been using GSM telephones, "not one single complaint has been received by the Danish Telecom Inspector from hearing aid users, car owners, hospitals, airports, medical equipment suppliers, consumer protection agencies, etc."^{7/} Other European operators similarly have received no or only extremely rare complaints of interference to hearing aids from GSM telephones.^{8/}

^{6/} Letter to Honorable Reed E. Hundt, Chairman, FCC, from Ole Mørk Lauridsen, Corporate Director R&D, Telecom Denmark, at 1 (March 26, 1995) (emphasis added) (Attachment 1).

^{7/} Id. at 1-2.

^{8/} See Letter from R. Mahler, DeTeMobil to Thomas E. Wheeler, President and CEO, Cellular Telecommunications Industry Association (June 29, 1995) (100% government-owned GSM provider to 1.1 million subscribers in Germany, stating that since initiation of service in July 1992, "we have received no reports of interference to hearing aids from our GSM phones"); Letter from Olavi Koistinen, Deputy Director, NMT-GSM section, Mobile Telephone Services, Telecom Finland, to Thomas E. Wheeler (June 30, 1995) (100% government-owned GSM provider to 130,000 customers in Finland, stating that since initiation of commercial service in June 1992, "we have received less than 20 reports of interference to hearing aids from our GSM phones. Almost all the reports of interference were received during the first year of commercial operation. In fact, we have subscribers who are hearing aid wearers and are quite pleased with their GSM phones."); Letter from Petter Blikrud, R & D Manager, Telenor Mobil to Thomas E. Wheeler (June 29, 1995) (100% government-owned GSM provider to over 100,000 customers in Norway, stating that
(continued...)

Despite the absence of evidence of a serious interference problem, the European wireless industry has taken seriously allegations that GSM systems may interfere with some hearing aids. As a result, the European Telecommunications Standards Institute ("ETSI"), regulatory authorities, operators, and GSM MoU have studied the potential for interference extensively, and have confirmed that interference problems relate particularly to older hearing aid models, and that the vast majority of new hearing aid models have significantly increased immunity to GSM devices and therefore are less susceptible to interference.^{9/} They have concluded that cost-effective hearing aid shielding is the best way to ensure that subscribers have access to digital telephones and eliminate interference from other non-radio sources. This shielding consists of coating the hearing aid case with a conductive material, using metal-impregnated cases, and/or including shunt capacitors in the circuit. Shielding also is consistent with the European Union's EMC directive, 89/336/EEC,

^{8/}(...continued)

since initiation of service in May 1993, "we have received no specific reports of interference to hearing aids from our GSM phones."); Letter from William L. Keever, Mannesman Mobilfunk GmbH to Thomas E. Wheeler (June 28, 1995) (GSM provider to more than 1 million customers in Germany, stating that since initiation of service in July 1992, "we have received irregularly a few reports if interference to hearing aids caused by our GSM phones. These reports have all been handled in a very straightforward manner."); Letter from Dr. Colin Tucker, Group Director of Operations, Orange Personal Communications Services Ltd. to Thomas E. Wheeler (June 28, 1995) (GSM provider to approximately 200,000 customers in England, stating that since initiation of service in April 1994, "we have received very few reports of interference to hearing aids from our GSM phones."); Letter from Mike Short, Director, Cellnet to Thomas E. Wheeler (July 6, 1995) (GSM provider to 65,000 customers in the United Kingdom, stating that since initiation of service in 1993, "we have received no reports of interference to hearing aids from our GSM phones and one enquiry."). Copies of these letters are located at Attachment 2.

^{9/} See ETSI Technical Report ETR 108, "European Digital Cellular Telecommunications System (Phase 2): GSM Electro Magnetic Compatibility (EMC) Considerations (EMC 05.90)" (Feb. 1994) ("ETSI Technical Report") (Attachment 3).

which requires electronic equipment, such as hearing aids, to be immune to interference from RF electromagnetic fields of 3 V/m by January 1, 1996. Thus, hearing aid shielding currently is the solution to the interference problem in Europe.

Even though they have concluded that shielding hearing aids is an effective solution to potential interference problems, European researchers have continued to study the few remaining electromagnetic incompatibility claims that exist in order to ensure that all such claims are addressed satisfactorily in a marketplace in which a range of products may be available. In light of the rapid spread of new technologies in Europe, such as telephones that employ digital modulation, ETSI now is considering increasing the level of immunity required of electronic equipment, such as hearing aids, from 3 V/m to 10 V/m through improved shielding. The European Hearing Instruments Manufacturers Association ("EHIMA") also is investigating ways to measure interference and to design hearing aids with improved shielding. Similar research is underway in Australia.

A recent study confirms that solutions in the form of improved shielding of hearing aids are readily available in the vast majority of cases in which interference from digital telephones may occur. In a report released in May 1995 -- prior to the filing of HEAR-IT NOW's petition but nevertheless ignored in the petition -- the National Acoustic Laboratories of Australian Hearing Services, a Commonwealth Government Authority, revisited its March 1993 study on which petitioner relies. The National Acoustic Laboratories determined that:

The tests show that it is possible and practical to design hearing aids to have high immunity although it may not always be practical to treat existing hearing aids to achieve high immunity. High immunity hearing aids would virtually ensure that the

hearing aid wearer would not experience interference from other people's use of GSM mobile telephones. However, extremely high immunity is required to enable a hearing aid wearer to use a handheld GSM telephone. Such immunity is achievable for some hearing aids.^{10/}

The report concluded that it "has elucidated the potential interference problem, has demonstrated that it is possible to design high-immunity hearing aids, has developed a practical measurement system, and has provided data for making realistic recommendations about hearing aid immunity standards and the design and use of mobile telephones for minimising the problem of interference to hearing aids."^{11/}

Further, any remaining interference to hearing aid users that GSM telephones may cause will become even less of a problem as hearing aids gradually wear out and are replaced. The five-year average life span of a hearing aid means that the newer, better-shielded devices discussed in the NAL Report soon will be commonplace. As a result, the remaining few complaints of annoyance experienced by hearing aid wearers as a result of the use of GSM phones will disappear in a few short years.

HEAR-IT NOW simply ignores all of this history and research. Instead, it misuses studies of various European and Pacific Rim markets to support its position that "in virtually all instances" GSM devices create "significant interference" to hearing aids. (Pet. at 4.) But these studies, which were performed as a result of the cooperative efforts of GSM operators, government administrators, and the hearing-impaired community, do not support

^{10/} National Acoustic Laboratories, "Interference to Hearing Aids by the New Digital Mobile Telephone System, Global System for Mobile Communications (GSM)," NAL Report No. 131, at Abstract iv (May 1995) (hereinafter "NAL Report") (Attachment 4).

^{11/} Id.

petitioner's claims. At most, those studies demonstrate that, where problems of interference from high-powered European and Pacific Rim systems have existed, inter-industry groups and standard-setting organizations have determined an appropriate course of action -- hearing aid shielding -- to address such problems in a manner that best satisfied the particular country's needs and circumstances.

In fact, the reports on which petitioner relies directly contradict its position and demonstrate that practical, cost-effective shielding will resolve the vast majority of problems that may arise. For example, while petitioner continues to rely on the May 1994 report of Ole Mørk Lauridsen, Director of Telelaboratoriet for Telecom Denmark, as noted above, Dr. Lauridsen subsequently has clarified the conclusions in that report. In a March 1995 letter, Dr. Lauridsen stated that his conclusion had been that, with the exception of older, inferior quality hearing aids, hearing aid users could use 2 watt GSM telephones without interference, and he further stated that the Danish Telecom Inspector had received no complaints of interference.^{12/} Petitioner's reliance on the March 1993 National Acoustic Laboratories report likewise is misplaced, since in May 1995 the same laboratory revised its report to conclude that interference can be solved in most cases through the use of properly shielded hearing aids.^{13/}

Even assuming that the studies on which petitioner relies demonstrate the existence of some incompatibility problem in Europe or the Pacific Rim, those studies do not

^{12/} See Letter to Honorable Reed E. Hundt, Chairman, FCC, from Ole Mørk Lauridsen, Corporate Director R&D, Telecom Denmark, at 1 (March 26, 1995) (emphasis added) (Attachment 1).

^{13/} See 1995 NAL Report, at Abstract iv (Attachment 4).

support petitioner's position that there would be a comparable problem in the United States. All of the studies at issue are based on units that operate at power levels two to four times higher than the planned levels for GSM telephones in the United States. United States systems also will operate at higher frequencies and thus shorter wavelengths (1900 MHz instead of 900 MHz) than the European systems under review. Thus, not only has the problem of electromagnetic incompatibility between GSM telephones and older hearing aids been minimal in Europe and the Pacific Rim; that problem likely would be even less noticeable with United States systems operating at lower power and higher frequencies.^{14/} Moreover, particularly since PCS systems will not be widespread in the United States until the 1997-1998 timeframe, any claims of an interference problem are speculative at best.

In short, HEAR-IT NOW has not shown, and cannot show, that the European experience with GSM operating systems provides evidence that GSM systems will cause serious interference to hearing aids in the United States. To the contrary, that history at most demonstrates that GSM systems operating at two to four times the power of planned U.S. systems and at lower frequencies than those proposed for the United States potentially cause some interference to older, poorly shielded hearing aids. That evidence, however, does not support petitioner's exaggerated claims of serious interference to every hearing aid user in the United States if GSM systems are deployed here.

^{14/} See NAL Report at 4 ("The emphasis in the work undertaken, to date has been on disturbances arising from radio frequency energy in the 900 MHz region. It is expected that the next generation of systems referred to will operate, predominantly in the 1800 to 2200 MHz region. The emissions will thus have appreciably shorter wavelengths than those studied in conjunction with GSM mobile telephones and the immunity performance of affected hearing aids towards them may be significantly different.").

II. THE PETITION FAILS TO SATISFY THE LEGAL STANDARD FOR REVOKING THE EXEMPTION FROM HEARING AID COMPATIBILITY REQUIREMENTS.

Because it has failed to demonstrate any convincing evidence that GSM systems will cause interference to hearing aids in the United States, petitioner fails to satisfy the legal requirements for revoking the exemption for PCS devices from the hearing aid compatibility requirements of the Hearing Aid Compatibility Act of 1988^{15/} and the Commission's implementing regulations.^{16/} The existing evidence clearly supports maintaining the existing exemption. Any other result would undermine Congress' intent in establishing the exemption, impede the further development and deployment of PCS systems in the United States, and gravely disserve the public interest.

The Hearing Aid Compatibility Act of 1988 requires the Commission to establish regulations "to ensure reasonable access to telephone service by persons with impaired hearing."^{17/} The Act requires the Commission to exempt certain technologies, including public mobile services, from this requirement.^{18/} In establishing this exemption, Congress pointed to new technologies such as digital telephones, and reasoned that the exemption is necessary because Congress "does not wish to hinder the development of such new technologies by requiring telephones to be HAC."^{19/} The Act therefore states that the

^{15/} 47 U.S.C. § 610(b).

^{16/} 47 C.F.R. §§ 68.4, 68.5.

^{17/} 47 U.S.C. § 610(a).

^{18/} Id. § 610(b)(2)(A)(i).

^{19/} S. Rep. No. 391, 100th Cong., 2d Sess. 6-7 (1988), reprinted in 1988 U.S.C.C.A.N. at 1350-51.

Commission "shall revoke or otherwise limit" this exemption only if the Commission determines that:

- (i) such revocation or limitation is in the public interest;
- (ii) continuation of the exemption without such revocation or limitation would have an adverse effect on hearing-impaired individuals;
- (iii) compliance with the requirements [of the Act] is technologically feasible for the telephones to which the exemption applies; and
- (iv) compliance with the requirements of [the Act] would not increase costs to such an extent that the telephones to which the exemption applies could not be successfully marketed.^{20/}

HEAR-IT NOW has not demonstrated that any, much less all, of these criteria are met. First, petitioner has not shown that eliminating the exemption for PCS devices will serve the public interest. Its entire public interest showing is limited to its assertion that every single hearing-impaired person in the United States "will be excluded from this next phase of the communications revolution" if the Commission permits the deployment of GSM systems in the United States. (Pet. at 5-6.) As shown above, however, petitioner's assertion is unsupported by the evidence and speculative at best. Moreover, since GSM technology already is in use around the world, the delay in the wide deployment of GSM technology in the United States that petitioner seeks will hinder, if not make impossible, the establishment of a global operating system, ensuring that other countries, rather than the United States, will remain in the vanguard of PCS technology on a worldwide scale.

^{20/} 47 U.S.C. § 610(b)(2)(C)(i)-(iv).

The Commission has concluded on numerous occasions that delaying the deployment of PCS services would disserve the public interest. From the beginning, the Commission has pursued its overarching desire to "bring that family of services known as PCS to the public expeditiously and with the least amount of regulatory delay."^{21/} To obtain this goal, the Commission has designed its PCS regulatory regime specifically to optimize the public interest values of speed of deployment and competitive service delivery.^{22/} Indeed, Congress underscored the public interest mandate to bring PCS service to the public as quickly as possible by granting the Commission auction authority to allocate PCS licenses, which the Commission explained would speed "the development and rapid deployment of new services to the public."^{23/}

Second, petitioner has not shown that maintaining the exemption would have an adverse effect on hearing-impaired individuals. (Pet. at 6-7.) Although users of poorly shielded hearing aids may have experienced some discomfort as a result of the higher-powered systems of other countries, the extent of such a problem in the United States is purely speculative. As the European and Pacific Rim experiences show, cost-effective shielding of hearing aids can protect users against such interference, and new generations of hearing aids not only protect against interference from others' digital telephones, but also

^{21/} Amendment of the Commission's Rules To Establish New Personal Communications Services, Notice of Proposed Rulemaking and Tentative Decision, 7 FCC Rcd 5676, 5678 (1992).

^{22/} Id. at 5679.

^{23/} 47 U.S.C. § 309(j)(3)(A); see Implementation of Section 309(j) of the Communications Act -- Competitive Bidding, Fifth Report and Order, 9 FCC Rcd 5532, 5535 (1994), reconsideration granted in part, Fifth Memorandum Opinion and Order, 10 FCC Rcd 403 (1994), erratum, DA 95-19 (released Jan. 10, 1995).

allow hearing aid wearers to use GSM telephones themselves. Furthermore, over the next five years, as existing unshielded hearing aids are replaced in the ordinary course with properly shielded hearing aids, any problems that may have appeared with older hearing aids will be resolved. The industry expects PCS systems to become widespread throughout the United States over approximately the same time period. Thus, by the time PCS becomes widely available in the United States, any interference problem with older hearing aids will have disappeared.

Third, petitioner has not demonstrated that compliance with hearing aid compatibility regulations is technologically feasible. Although the experiences of every other country that has investigated the issue indicate that shielding hearing aids resolves interference problems, petitioner urges that the Commission instead should require the industry to redesign GSM devices before marketing them. (Pet. at 7.) Apart from the obvious delay in the deployment of PCS systems that such a requirement would cause, there is no reason to require manufacturers that have already spent several years and billions of dollars developing a technology to shoulder the burden of correcting a speculative problem that some hearing aid users may experience from all digital transmissions prior to the replacement of their hearing aids in a few years in the ordinary course. This is particularly true since at present there is no hearing aid standard in the United States, and hearing aids of vastly different quality and technical design currently exist.

If the Commission were to adopt petitioner's standard, the wireless industry would need to redesign all of its equipment to meet the needs of every user group before that equipment would ever become available to the general public. Such a standard also would

mean that manufacturers would need to design equipment to have additional components and features that many users would find unnecessary, expensive, and burdensome. Given that the small size of PCS telephones is one of their attractive features, requiring the addition of such components could eliminate one of the important advantages of the technology.

This does not mean that the wireless industry is not continuing to search for solutions beyond shielding hearing aids. Contrary to what petitioner would have the Commission believe (Pet. at 7), in order to ensure that users of a wide range of hearing aids do not experience discomfort from GSM phones, ETSI, GSM MoU, manufacturers, and other industry groups actively are exploring options to determine whether modifications to GSM telephones, infrastructure, and design principles could alleviate potential interference problems that may arise. The industry already has adopted petitioner's suggestion that it reduce the maximum operating power of GSM systems (Pet. at 7); indeed, GSM systems elsewhere in the world operate at substantially higher power levels than those planned for the United States. Petitioner's other suggested option -- relocating the transmitter portion of the telephone away from the hearing aid (Pet. at 7) -- is unworkable in light of the small size of PCS devices and their intended use.

Joint efforts between industries, GSM MoU, and ETSI already are achieving results. Through those efforts, ETSI has conducted a comprehensive study of the effect of GSM on hearing aids, and has identified solutions that involve not only immunizing hearing aids but also imposing certain constraints on urban GSM system design.^{24/} These solutions will be part of the GSM specifications that GSM service providers will follow in order for

^{24/} See ETSI Technical Report, at 11 (Attachment 3).

GSM service to be available to the broadest sector of the world's population. As PCS becomes a reality in the United States over the next few years, the industry looks forward to exploring further measures for alleviating any possible interference that GSM operating systems may cause to hearing aids, but at present additional measures simply are not technologically feasible.

Fourth, petitioner has not demonstrated that compliance with the hearing aid compatibility requirements would not increase costs to such an extent that GSM devices could not be marketed successfully. Petitioner states that GSM technology is not yet in use in the United States, and urges that the costs to the industry therefore will be insignificant. (Pet. at 7-8.) Petitioner's argument makes no sense. The fact that PCS has not yet been deployed in the United States is irrelevant to the question of who should bear the costs of enabling hearing-impaired individuals to use GSM phones. The industry has invested billions of dollars in developing the technology and the infrastructure to deploy GSM systems in the United States. Changes required to comply with additional regulations will be expensive, and all consumers ultimately will bear those costs in the form of higher equipment and service charges. Many consumers no longer may be able to afford GSM telephones, a result clearly contrary to the Commission's goals.

Moreover, as a practical matter, the very changes that petitioner appears to urge could make the telephones undesirable to the vast majority of potential subscribers. The addition of components to PCS phones that require features such as larger handsets or capabilities that the average user may not want could well lead potential purchasers to lose

interest in the phones, as well as increase the price of the phones to all users. This in turn could make it difficult to market PCS devices successfully.

Finally, requiring compliance with hearing aid compatibility requirements could affect the entire wireless industry. Some cellular systems currently use TDMA technology. The result that petitioner seeks would impose substantial burdens not only on service providers that propose to implement GSM PCS systems, but also on existing cellular providers. In the end, service providers may be unable to deploy or further offer GSM or any other digital technology at all, leaving the United States only with technologically antiquated, analog wireless systems.

In sum, HEAR-IT NOW has not met the legal standard for subjecting PCS systems to the Commission's hearing aid compatibility requirements. The Commission therefore should deny the petition for rulemaking.

III. INTER-INDUSTRY COOPERATION TO ACHIEVE ELECTROMAGNETIC COMPATIBILITY IS OCCURRING AND IS THE FAIREST WAY TO RESOLVE ANY INTERFERENCE PROBLEMS THAT MAY ARISE.

Since all digital devices have the potential to interfere with electronic equipment such as hearing aids, and interference problems may worsen as digital technology continues to proliferate, the wireless industry recognizes that it has a special responsibility to develop appropriate solutions to potential problems that may result from digital transmissions. There is no evidence at this time, however, that the problems of which petitioner complains will exist in the United States. Rather than impose additional regulation on a new technology, the Commission therefore should defer to the cooperative efforts of the wireless industry, hearing aid manufacturers, and representatives of the hearing-impaired

community to explore and develop mutually acceptable solutions to future problems that may arise.

In the United States and around the world, the wireless industry is comprised of socially responsible companies and organizations that are deeply concerned about accusations that its digital equipment may interfere with some hearing aids. Contrary to petitioner's misstatements, the industry actively is exploring possible solutions to interference problems that may arise. Indeed, members of GSM MoU, under the association's auspices, have funded numerous studies addressing this issue, and plan to continue supporting this research. GSM MoU also participates actively in cooperative industry efforts around the world to address electromagnetic interference concerns.

For example, GSM MoU and EHIMA are establishing a joint working group to identify and develop solutions to interference problems. The joint working group has four primary tasks:

1. To develop and approve a mutually acceptable statement indicating that GSM telephones may interfere with hearing aids which do not comply with the European Commission's EMC Directive. The statement should also instruct users, who experience interference, in an appropriate course of action. The finalized statement should be used in all hearing aid and GSM product literature.
2. To develop and implement an information campaign for hearing aid dispensers regarding GSM equipment compatibility.
3. To investigate new GSM and hearing aid features which will provide the hearing impaired higher quality access to GSM telecommunications services.

4. To monitor the future development of both technologies (hearing aids and GSM) to insure compatibility.^{25/}

In addition, GSM MoU's cooperation with ETSI has led to the identification of solutions to incompatibility problems.^{26/} Those solutions include not only increased immunity for hearing aids, but also modifications to urban GSM system designs. As a result of GSM MoU's and ETSI's cooperative efforts, these changes will become part of the specifications for GSM systems that service providers will implement.

GSM MoU also is proud to be working with the Center for the Study of Wireless Electromagnetic Compatibility at the University of Oklahoma. The Center was established in early 1994 with seed money from the wireless industry. The Center is researching and developing solutions to electromagnetic incompatibility problems, including concerns that wireless telecommunications cause interference to hearing aids.

The wireless community is committed to supporting cooperative industry and independent efforts to address electromagnetic interference management issues. For example, in Europe, cooperation among the wireless industry, the hearing-impaired, and standard-setting organizations resulted in the establishment of standards that have successfully addressed concerns about interference. While standard-setting may or may not be an appropriate solution for the United States marketplace, the U.S. wireless industry is equally committed to working cooperatively with hearing aid manufacturers and others to address the U.S. situation.

^{25/} Joint Statement of GSM MoU and EHIMA (Attachment 5).

^{26/} See ETSI Technical Report (Attachment 3).

Particularly in light of the lack of evidence of an incompatibility problem in the United States, the Commission should allow the affected industries to work together in an effort to investigate and solve any future problems that may arise, rather than imposing the sole burden of compatibility on a fledgling industry preparing to deploy a new, complex, and long-awaited technology. GSM MoU looks forward to continuing its participation in such cooperative efforts, and stands ready to cooperate with the hearing-impaired community to reduce whatever interference or annoyance to hearing aids may be perceived to exist, or may be found to exist once PCS is brought to market, so that all Americans can enjoy the benefits of a global wireless technology.

CONCLUSION

For the foregoing reasons, the Commission should deny the petition for rulemaking.

Respectfully submitted,

GSM MOU ASSOCIATION

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July 17, 1995

The Honorable Reed E. Hundt
Chairman Federal Communications Commission
1919 M Street, NW, Room 314
Washington, DC 20554
USA

Corporate R&D

26. March 1995

OML

Subject: Global System for Mobile communications (GSM) as an operating
Standard for PCS in the United States of America.

Dear Mr. Chairman:

During the last few weeks, letters and reports regarding the public health and safety of GSM in the United States of America have been circulated between you, United States Senators, Senate Committees and Subcommittees, and Baker and Hostetler prompted in part by misinterpreted and unauthorized comments attributed to me in a report issued by Wireless Communications Council entitled: "The GSM Operating Standard for Personal Communications: A Threat to Hearing Aids and Other Consumer and Medical Electronic Devices". I am writing to you to clarify the situation on electromagnetic compatibility (EMC) between GSM, hearing aids, and other electronic and electrical equipment.

As director of Telelaboratoriet for Telecom Denmark, let me first of all clearly state that GSM telephones, hearing aids, and all other electronic and electrical equipment which meet the European Union EMC directive, 89/336/EEC, can operate simultaneously without interference from each other. This means that hearing aid users can successfully and comfortably use a 2 watt, handheld GSM telephone in conjunction with a hearing aided ear without interference. The only interference my laboratory has ever reported has been between old, inferior quality hearing aids located within three feet's or less of a handheld GSM telephone operating at it's maximum power level of 2 watts. In the existing population of hearing aids, one third had the immunity to be used with a GSM telephone, the rest had such good immunity that the probability for disturbances from other users of GSM telephones was found to be negligible.

In my little country of Denmark, over 250.000 people (4.8 % of the population) are currently using GSM telephones on two competitive, nation-wide networks and not one single complaint has been received by the Danish Telecom Inspector from

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