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December 19, 1994

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

Federal Communications Commission
1919 M Street, N.W.
Room 222
Washington, D.C. 20554

Re: CC Docket 92-115

Dear Sir or Madam:

Enclosed for filing on behalf of the Mobile and Personal Communications 800 Section of the Telecommunications Industry Association are an original and ten copies of a Motion for Stay, and a Petition for Clarification and Reconsideration in the above referenced docket.

All questions regarding these pleadings can be referred to the undersigned.

Sincerely,

Grier C. Raclin

Enclosures

cc: All Commissioners

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RECEIVED

DEC 19 1994

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

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

In the Matter of	)	
	)	
Revision of Part 22 of the Commission's Rules Governing the Public Mobile Services	)	CC Docket No. 92-115
Amendment of Part 22 of the Commission's Rules to Delete Section 22.119 and Permit the Concurrent Use of Transmitters in Common Carrier and Non-common Carrier Service	)	CC Docket No. 94-46 RM 8367
Amendment of Part 22 of the Commission's Rules Pertaining to Power Limits for Paging Stations Operating in the 931 MHz Band in the Public Land Mobile Service	)	CC Docket No. 93-116

TO: THE COMMISSION

MOTION FOR STAY

THE MOBILE AND PERSONAL COMMUNICATIONS 800 SECTION OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION

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Dated: December 19, 1994

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SUMMARY

The Mobile and Personal Communications 800 Section of the Telecommunications Industry Association (TIA), by this Motion, requests the Federal Communications Commission to stay the effective date of certain provisions of Section 22.919 of the Commission's Rules pending the Commission's review of the Petition for Clarification and Reconsideration being filed by TIA concurrently herewith. The relevant provisions, implemented as part of the Commission's overall plan to prevent cellular fraud, prohibit manufacturers' authorized agents from altering the Electronic Serial Numbers (ESNs) of certain cellular mobile equipment in connection with the repair and upgrade procedures in the field and fail to adopt a requirement that cellular telephones conform to TIA's authentication standards. Absent a stay, the new Rule would become effective on January 1, 1995.

TIA has made the requisite showings for the grant of the stay. First, a review of the arguments made in the Petition reveals that TIA is likely to succeed on the merits of its requested Petition. TIA's Petition shows that the proposed ESN hardening required by the Rule is prohibitively expensive and will not be effective in fighting cellular fraud. Moreover, it shows that proposed Rule is duplicative of ongoing efforts to adopt far more effective authentication standards and requirements. Therefore, it is likely that the Commission will reconsider certain provisions of its new Rule.

Second, TIA has shown that denial of the stay will irreparably harm movants. The Rule severely interferes with manufacturers' repair and service upgrade procedures. Prohibiting manufacturers' authorized representative from altering ESN in the field will substantially increase the cost, and may decrease the quality of service and equipment, to customers.

Additionally, the implementation of the Rule may significantly and adversely affect the ability of TIA's members to export their products.

Next, institution of the stay will not adversely affect interested parties. Even the Commission's proposed Rule will not be applicable to units presently in the field, or sold in the future pursuant to existing type acceptance authorizations. Therefore deferring the effective date of the Rule provisions will therefore have no immediate or short-term impact. By the time the new Rule could be implemented, the industry's authentication features will have already been implemented, thus rendering the ESN protections adopted by the Commission obsolete. Finally, the foregoing reveals that the benefits resulting from the stay far outweigh any burden or costs resulting from the stay of the Rule provisions which are the subject of TIA's associated Petition. The public interest would therefore be served by adoption of the stay for the limited time requested.

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

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MOTION FOR STAY

The Committee Mobile and Personal Communications 800 Section of the Telecommunications Industry Association (TIA), by its counsel, and pursuant to Section 1.106(n) of the Commission's Rules, hereby moves the Federal Communications Commission ("FCC" or "Commission") to stay the effective date of certain provisions of new Section 22.919 of the Commission's Rules pending the Commission's review of the Petition for Clarification and Reconsideration filed by TIA concurrently herewith. In support of this Motion, TIA states as follows:

I. BACKGROUND

A. Telecommunications Industry Association

1. The Telecommunications Industry Association is the nation's largest organization of telecommunications equipment manufacturers, and specifically includes in its membership virtually all major cellular telephone system and mobile equipment manufacturers. Its Mobile and Personal Communications 800 Section includes in its membership virtually all major cellular telephone system and mobile equipment manufacturers. The Association's 587 members, provide products and services worldwide, and collectively have annual sales of over $20 billion. TIA's members are directly impacted by the problem of cellular fraud and by any Commission proposed remedy to cellular fraud that affects the way their products are manufactured, repaired or upgraded.

2. TIA has steadfastly supported the FCC's and industry efforts to fight and overcome cellular fraud, and will continue to do so in the future. The historical development of cellular anti-fraud designs and features implemented by TIA members manifests TIA's consistent and unwavering support of the FCC's, the Cellular Telephone Industry Association's (CTIA's), law enforcement agencies', and the public's efforts to overcome the fraudulent use of cellular telephones. It is important to note that the stay is requested *to enhance* -- not to undercut -- such efforts. TIA firmly believes that the stay will provide TIA, its members, CTIA, and other interested parties with sufficient time to design and implement anti-fraud procedures and features that are more effective and less wasteful than the "ESN hardening" protections adopted by the Commission in the referenced Rule.

B. Electronic Serial Numbers

3. An Electronic Serial Number ("ESN") is an identifying number that is uniquely assigned to each mobile, transportable, and portable cellular subscriber unit. At the time of "call setup," when the unit initiates a call or is polled for a call directed to it, the unit's ESN is transmitted without encoding to the relevant system's switch along with the unit's Mobile Identification (telephone) Number ("MIN"). In present-day systems, if the calling or polled unit is a "roamer" in the system's service area, the ESN/MIN pair is transmitted via the TIA "Interim-Standard" ("IS") - network to the unit's "home system." The local or distant "home system" compares the unit's transmitted ESN/MIN combination with information contained in its records to make sure the combination matches ESN/MIN pairing information for authorized users. If the MIN/ESN combination transmitted by the unit does not match with the system's data, the call may be blocked by the system operator.

4. Cellular telephone systems use ESNs to identify units for call-billing purposes. Even in the earliest days of cellular system design, it was recognized, therefore, that protecting ESN from alteration by unauthorized individuals, or from unauthorized transfers to phones not owned by an authorized user, was important to assure accurate call billing. For this reason, the original cellular system design description issued by AT&T Bell Laboratories' Advanced Mobile Phone Service in October 1982, specified that ESNs should be "stored in a read only memory (ROM) suitably capsulated and mounted in a mobile unit." Id. at ¶ 1.7.2. Similarly, the FCC's original "Cellular System Mobile Station -- Land Station Compatibility Specification", OST Bulletin No. 53, July, 1983, specified that ESNs

> must be factory set and not readily alterable in the field. The circuitry that provides this serial number must be isolated from

fraudulent contact and tampering. Attempts to change the serial number circuitry should render the mobile station inoperative.

5. Unfortunately, as cellular system and subscriber unit design evolved, the opportunities for the fraudulent transfer and misuse of ESN/MIN combinations also increased. With each new technological development designed to combat cellular fraud came an offsetting development in the tools and technology available to fraudulent users. For example, when the simple electronic passwords used in early system design proved inadequate, TIA members' designed and implemented ESN encryption, and later implemented the use of "flash memories" to store and process ESN information. When fraudulent users of cellular telephones attempted to masquerade as legitimate roaming users by transmitting random ESN/MIN pairs to local systems, TIA members designed and implemented changes to the IS-41 inter-system call processing network to allow real-time inter-system verification of ESN/MIN pairs.

6. Perhaps the most illustrative of TIA members' efforts to fight cellular fraud is the recent adoption by TIA's Wireless Standards ("TR45") Committee, in association with CTIA representatives, of standards for the installation and use of cellular cryptographic authentication procedures and features. These standards were first proposed in 1989 in connection with the TDMA Dual Mode telephones because they offered a superior way to verify authorized subscriber unit usage without the risks associated with the reliance on ESNs for this purpose. After three year's work, the standards were adopted and described in 1992 for TDMA dual mode phones pursuant to industry's IS-54B TDMA Dual Mode system specification. Industry members then worked to expand the adoption of authentication standards for other equipment, and successfully did so to include inter-system signaling as described in IS-41 in 1992; CDMA dual mode phones as described in IS-95 in 1993; and AMPS and NAMPS analog telephones

equipment as described in IS-91 in 1994. Even now, the industry is working to expand the adoption of authentication standards to include new TDMA single mode telephones as described in IS-136, and Personal Communications System ("PCS") equipment to be described in an upcoming Interim Standard. In all cases, the proposed authentication standards were subject to rigorous industry analysis and laboratory and field testing, and are being implemented into current generation equipment. In all, industry members have spend *many* years of labor and *many millions* of dollars designing, testing and deploying authentication technology as a replacement for the imperfect ESN-basis anti-fraud verification system.

C. New Rule Section 22.919

7. In Comments filed in this proceeding, CTIA proposed that the FCC make the industry's authentication standards mandatory so as to require all cellular subscribed units that are sold in the United States and manufactured after a certain date to comply with the industry-backed authentication standards. CTIA Comments at 8. Rather than rely upon the industry's proposed authentication methodology to combat cellular fraud, however, the Commission instead adopted rules requiring the further protection -- or "hardening" -- of ESNs. The Commission rejected CTIA's proposal on the basis that implementation of the authentication procedures "could have the unintended effect of precluding multiple cellular telephones (each with a unique ESN) from having the same telephone number." *Report and Order* at ¶59. In short, the FCC decided to continue to address cellular fraud by attempting to make cellular phones incapable of accepting pirated ESNs, rather than removing the reliance on, and importance of, ESNs for billing purposes by adopting the authentication standards. New Rule Section 22.919 manifests this by deleting the term "readily alterable" from the old ESN protective language, and replacing

it with the requirement that ESNs "must be factory set and must not be alterable, transferable, removable or otherwise able to be manipulated." 47 C.F.R. Section 22.919 (1995).[1]

8. Additionally, when adopting new Rule Section 22.919, the FCC rejected suggestions made by CTIA, and various equipment manufacturers that the Commission modify its proposed rule to allow manufacturers' authorized service centers to transfer ESNs in the course their normal repair activities. See , e.g., CTIA Comments at 8, Comments filed by Ericsson Corp., at 2-5. The parties noted that such ESN transfers were crucial to manufacturers' repair and service upgrade procedures, without which, cellular units would have to be shipped to manufacturers' repair sites to remove or transfer ESN from equipment, at tremendously greater cost and inconvenience to subscribers. In rejecting these proposals, the Commission noted its fear that

> computer software to change ESNs, which is intended to be used only by authorized service personnel, might become available to unauthorized persons through privately operated computer 'bulletin boards'. We have no knowledge that it is now possible to prevent all unauthorized use of such software for fraudulent purposes. Accordingly, we decline to make the exception requested. . . .

Id. at ¶ 61.

D. TIA's Petition For Clarification And Reconsideration

9. To address what it believes to be the Commission's unwarranted and most likely ineffective reliance on ESN hardening to combat cellular fraud, and resolve other more minor issues relating to the Commission recent *Report and Order* in this docket, TIA is filing concurrently herewith a Petition for Clarification and Reconsideration of the *Report and Order.*

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[1] While the Rule itself is unclear on this point, the *Report and Order* makes it apparent that the Commission intended to prohibit only *field* alterations of ESNs by this Rule and did not intend to prohibit ESN changes occurring at the manufacturing site. See *Report and* Order, Appendix A - Discussion of Rule 22.919.

In that Petition, TIA requests the Commission to: (1) clarify that ESN transfers undertaken by authorized manufacturers representatives on *current*-generation telephones are allowed; (2) reconsider its rejection of the proposal that would allow even next-generation subscriber units to have ESNs that are transferable by manufacturers' authorized representatives in connection with normal repair and service upgrade activities; and (3) reconsider its rejection of the proposal that subscriber cellular units incorporate industry authentication standards. The purpose of this Motion is to obtain a stay of that portion of the new Rule that requires ESNs of future-generation cellular subscriber equipment to be totally inalterable in the field -- even by manufacturers' authorized agents --while TIA's associated Petition is pending.[2] Absent a stay, the new Rule would become effective in approximately two weeks: on January 1, 1995.

II. THE CRITERIA FOR GRANTING A STAY

10. Section 1.429(k) of the Commission's Rules provides that the Commission may stay the effective date of an Order if pending reconsideration by the Commission upon a showing of "good cause." 47 C.F.R. § 1.429(k). In evaluating whether good cause has been shown, the Commission considers the four factors enumerated in Virginia Petroleum Jobbers Association v. F.P.C., 259 F. 2d 921 (D.C. Cir. 1958) as explained in Washington Metropolitan Area Transit Commission v. Holiday Tours, Inc., 559 F.2d 841 (D.C. Cir. 1977). See e.g., In the Matter of Policies and Rules Concerning Local Exchange Carrier Validation and Billing Information for Joint Use Calling Cards, 8 FCC Rcd 6393, 6394 (1993).

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[2] It is important to note that TIA is *not* requesting a stay of that portion of the Commission's Rules that would prohibit *un*authorized alternations of ESNs.

11. In Virginia Petroleum Jobbers, the Court stated that in determining whether a stay is warranted, the following factors are influential: (1) Whether the petitioner has made a strong showing that it is likely to prevail on the merits of its reconsideration request; (2) whether it has shown that, without such relief, it will be irreparably injured: (3) whether the issuance of the stay would substantially harm other interested parties; and (4) whether the requested stay would serve the public interest. Virginia Petroleum Jobbers, 259 F.2d at 925. See In the Matter of Amendment of Section 64.702 of the Commission's Rules and Regulations (Second Computer Inquiry), 79 F.C.C. 2d 953, 956 (1980). This test was slightly refined in Holiday Tours, when the court stated that when the second, third and fourth factors favor interim relief, a tribunal "may exercise its discretion to grant a stay if the movant has made a substantial case on the merits." Holiday Tours, 559 F.2d at 843. The Court in Holiday Tours noted that petitioners do not have to establish the first criterion with "mathematical probability," id. at 844. Rather, the Commission should look to the "balance of the equities" to decide what level of probability would be required. Id. at 845.

A. Likelihood of Success on the Merits

12. As indicated above, concurrently herewith, TIA is filing with the Commission a Petition for Reconsideration of the FCC's *Report and Order,* requesting the Commission (1) to clarify that manufacturers' authorized agents are allowed to transfer ESN in connection with the repair or upgrade of subscriber units that received the Commission's Type Acceptance approval prior to January 1, 1994; (2) reconsider its decision to prohibit manufacturers' authorized repair agents from transferring ESNs in the course of normal repair and service upgrades of units

receiving Type Acceptance approval after January 1, 1995; and (3) reconsider its decision not to require cellular telephones sold in the United States to meet industry authentication standards.

13. As explained below, TIA's Petition demonstrates that the Commission's ESN hardening rule is an expensive and ineffective way to fight cellular fraud. It also shows how, contrary to the Commission's fears, ESN-altering software can be protected while in the hands of manufacturers' authorized repair agents. Finally, the Petition explains why authentication is superior to ESN hardening for fraud protection, and how authentication does not interfere with cellular extension service. In sum, the Petition has given the Commission good reason to grant its Petition for Clarification and Reconsideration.

14. With regard to the requested allowance of ESN transfers on equipment receiving required approvals after January 1, 1995, TIA's Petition also makes clear that implementation of the Commission's Rules as presently drafted will significantly and adversely affect the ability of TIA's members to repair and upgrade their subscriber units. As a result, consumer service and equipment costs will increase while the quality of service and equipment may decrease.

15. The Commission also was incorrect in surmising that ESN-altering software could not be protected while in the hands of manufacturer's authorized repair agents. Ericsson's Reply Comments outline one option utilized by many manufacturers to protect ESN-altering software. In addition, it is likely that this software could be protected using either symmetric or asymmetric key cryptography similar to that which underlies the authentication protections being installed in new generation telephones (*see* text *infra*).). Under this procedure, the repair agent could obtain access to ESN software only by inputting a digitized "signature" that would be safe from unauthorized access equally at the manufacturer's own repair location *or* in the field.

16. Indeed, while no protection of ESN-modifying software would be totally fool-proof, there is no reason to believe that software located at manufacturers' agents service locations will be any less secure than at the manufacturers' own manufacturing sites. TIA members will, of course, undertake all reasonable efforts to protect ESN-altering technology that is located at its agents sites, and the Commission might condition the right of manufacturers' agents to alter ESNs upon their implementing such protections. (See Exhibit A to the Petition.)

17. It appears from historical investigations, in fact, that the first use of pirated ESN modifying software arose not in United States at all (and certainly not from a break-in at a repair agent's location), but in connection with *ETACS* equipment that was manufactured and sold in *England* and *Greece*. Quite simply, so long as the Commission continues to rely upon ESNs to verify the identity of subscriber equipment for call billing purposes, and the FCC's own compatibility standards (as set forth in OST-53) require ESNs to be broadcast without encoding, there is virtually no protection that the FCC can implement totally to safeguard ESN modifying technology. The better step is as proposed by CTIA: to rely upon new authentication methodologies rather than ESNs for this purpose.

18. With regard to TIA's request that the Commission require cellular units sold in the United States to comply with TIA-backed authentication standards, TIA's Petition establishes that the authentication methodology is a far superior, more efficient, and less costly method of combating cellular fraud than the ESN "hardening" adopted by the FCC. Moreover, contrary to the FCC's concerns, adopting of the authentication requirements will *not* prohibit or even interfere with the provision of cellular extension phone service. While the basis of the Commission's concern is not clear in the *Report and Order*, TIA's service standards as set forth

in IS-53 address the need for differentiating among telephones with the same MIN in a variety of ways, including the use of "cellular hunt groups" that prioritize the extensions utilizing the same MIN for call delivery purposes. Requiring cellular subscriber equipment to satisfy industry-accepted standards will assure compliance with the Commission's overall compatibility requirements.

19. As indicated above, notwithstanding the best efforts of TIA , CTIA, law enforcement agencies, and the general public, ESNs can never be fully protected so long as they are broadcast "in the clear" during call set-up processes as required by OST-53. The design of cellular systems complying with OST-53 (*i.e.*, all of them) calls for ESN-based verification to occur within the system switch, which requires ESNs to be broadcast by subscriber units, without encoding, to the relevant systems for verification. ESNs simply cannot be protected totally from creative interception and decoding techniques, or misuse by sophisticated criminals. Even if the Commission were to require the transmission of encoded ESNs using the polynomial multiplication/division, cyclic coding, or bit spreading technologies specified in the Rules, these advanced technologies eventually will be overcome by dedicated, sophisticated criminals utilizing equally up-to-date technologies and equipment. In short, the fundamental flaw in the Commission's new Section 22.919 is its continued reliance upon ESN-based caller verification in the first place. Even if, contrary to the lessons of the past, new ESN hardening techniques can be protected from invasion by equally "hardened" criminals, this reliance on ESNs utterly ignores the fact that ESNs can still be "stolen" over-the-air and inserted into the *20+ million* subscriber

units that are active today, and the many millions more that may be manufactured offshore in the future that will not incorporate "hardened" ESNs.[3]

20. TIA's authentication is a superior method to protect against cellular fraud because it does not rely upon the open transmission of ESN or similar information to verify callers for call billing purposes. Rather, authentication methodologies render ESNs obsolete for billing purposes by separating the identification of mobile equipment required by the manufacturers for repair, service upgrade and other similar purposes, from the identification of mobile equipment required by the carriers for call billing purposes. Whereas ESN still would be utilized to serve the former purpose, the authentication methodology would be used for call billing verification.

21. With authentication methodology, the identity of a subscriber unit for billing purposes is obtained from a cryptographic variable, called an "Authentication-" or "A-Key", that is never broadcast over the air but resides, protected, in the cellular subscriber unit. The A-Key is alterable by the subscriber, and is shared by them with the System by means other than over-the-air transmissions. At the time of call set up, a cryptographic "Challenge" is broadcast by the system to the mobile unit. The Challenge need not be protected from interception because it is worthless without the A-Keys associated with polled subscriber units. When it receives a Challenge, the subscriber unit computes a "Response" that is mathematically based on its A-key, the Challenge, and other data that is shared with the system (such as portions of its ESN, its MIN and similar information) according to an algorithm that also is shared with the system.[4] The

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[3] Indeed, even assuming the ESN hardening requirements adopted by the Commission, new generation phones might be subject to "Class C" counterfeiting in which the ESN protections are irrelevant because the phones' *entire code set* -- including the encoded ESN -- is removed and replaced with other information, including fraudulently obtained ESNs.

[4] This method is based on an algorithm called CAVE which has been determined by the Office of Defense Trade Controls to be a Category 13, Subsection B, U.S. Munitions List Cryptographic Technology.

System is, therefore, equally capable of calculating the mobile station's expected response to its challenge. If the mobile station's calculated Response equals the system's expectation, the authentication process is satisfied. If not, the mobile station can be denied service.

22. The authentication methodology is far more secure than the ESN-based verification methodology because the information that is broadcast -- the Challenge and the Response -- is useless without the A-Key that is integrated into the subscriber's actual unit and never broadcast. The algorithm used in the process is "one way," which means that it is virtually impossible to derive its input information (such as the A-Key) from its calculated conclusion. It is practically impossible to derive the A-Key from the Response, even if the Challenge, and other information used in the algorithm is known. While it may be theoretically possible to "reverse engineer" the A-Key from this information, it is estimated that there is only a 1 in 2^{128} chance of correctly guessing a private A-Key consistent with information available information. The Commission must compare that success rate to the virtually 100% chance of determining an ESN once it is intercepted.[5]

23. Importantly, it is likely that authentication will be implemented in the marketplace long before the FCC's new ESN regulations would become applicable. It is estimated that it will require approximately 9-12 months to design, manufacture and deploy cellular telephone units incorporating the ESN hardening protections outlined by the Commission. Authentication methodologies, on the other hand, have already been through the design and acceptance phase; have been approved by the relevant TIA and CTIA representatives and technical committees;

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[5] Even the chance of loss resulting from this one-in-a-million event can be reduced by the concurrent use of the many fraud-fighting software on the market, as described in "Fending Off Fraud" appearing in the September, 1994 edition of *Cellular Business* at p. 32.

have been reviewed by relevant export authorities; and are now being installed, and are appearing, in subscriber units being sold to the public. In all likelihood, these authentication features will be fully deployed in new-generation equipment within a 6-9 month time-frame. Given these circumstances, the adoption of ESN hardening protections outlined by the FCC are totally unnecessary and inferior to the authentication methodologies already being adopted by the industry.

B. Denial of the Stay Will Irreparably Harm Movants

24. Adoption of the FCC's ESN hardening protections as outlined by the FCC will have at least two dramatically adverse effects on manufacturers, carriers, and subscribers. *First*, the financial cost to manufacturers -- and thus to consumers -- resulting from implementation of the Commission's new ESN protective Rules will be substantial possibly approaching $30 million. Not only will these costs have to be incurred by the manufacturing community to design ESN-hardening software and hardware, but it would cost an additional $1.50 - $3.00 per-unit (or approximately *$100 million additional dollars*, given past growth patterns) to install such features into cellular subscriber units over the next year or two. Additionally, the cost for servicing defective units and upgrading the software of all units will rise substantially to account for the shipment of units back to manufacturing sites to transfer ESN as required or appropriate for repair and service upgrade activities. These shipment costs alone can approach $3.00 - $5.00 per unit, or *many millions* of dollars when the average number of repaired or upgraded units are considered. The sum of these costs either will have to be paid directly (in the case of units needing repair after the warranty period) or indirectly (in the case of repairs required during the warranty period) by consumers without any offsetting benefit (See text, *infra*.). Indeed, to defer

incurring these costs without any offsetting benefits, it is likely that manufacturers will delay the introduction of models requiring new Type-Acceptance Approvals, thus denying the public the advantages of technological advances.

25. Given the increased costs required to implement the Commission's new Rules, it is likely that customers and manufacturers will simply discard defective units and units seeking service upgrades rather than incur the costs associated with shipping the units back to the manufacturers' sites to replace the associated ESNs. Indeed, some state warranty laws might *require* manufacturers to do this by requiring that all repair and upgrade of cellular units take place locally for a period of time after unit purchase. Because the FCC's new Rule Section 22.919 would effectively prohibit local repair activity that involves ESN transfers, service centers may have no choice but to discard units and ESNs in connection with local servicing. This discarding of telephone equipment, and their associated ESNs (given the prohibition of ESN removals by authorized repair centers) would be tremendously wasteful and again would dramatically increase the cost of equipment and service to consumers.

26. Customer inconvenience, and the resulting loss of the consumers' goodwill towards the industry and their respective carriers, is a dramatic non-financial industry cost that will result from implementation of the Commission's new rules. This is especially true after telephone warranties expire, when consumers would be forced to directly pay the entire cost of shipping the unit back to manufacturers' repair sites. If the consumer would decide not to bear such costs, he or she is forced to either purchase an entire new telephone, or terminate service. Neither option should prove attractive to the industry or the Commission.

27. Implementation of the Commission's Rule will also affect significantly and adversely the ability of TIA's members to provide repair and service upgrades to carriers and consumers, thus again increasing the cost of cellular service and equipment. As outlined in Ericsson's initial comments filed in this proceeding, procedures presently utilized by virtually every cellular telephone manufacturer call for authorized repair agents to transfer ESNs from defective or old equipment to new equipment if they are incapable of repairing a subscriber unit quickly. This allows the customer to enjoy ongoing service without the inconvenience and delays that would result from the FCC mandated return of the units to the manufacturers' sites. Additionally, while ESN rarely cause or contribute to a unit's failure, manufacturers normally use the opportunity of repairing a unit to upgrade its software -- which normally includes the exchange of an ESN -- to include the latest features. Adoption of the FCC's rules as written would (1) prohibit manufacturers from making these ESN transfers in the field even with the authorization of the subscriber; (2) require subscribers to reestablish service utilizing new ESNs while their defective units remain at the manufacturing plant for repair; (3) require manufacturers to incur, and pass on to consumers, the costs of returning defective units back to manufacturing sites to evaluate whether they should be repaired or discarded; (4) prohibit carriers from utilizing ESNs incorporated into defective units pending such evaluation and repair; and (5) prohibit service upgrades normally undertaken in connection with repair activities. In sum, adoption of the new Rule would tremendously disrupt currently established cellular telephone repair and upgrade practices.

28. Finally, implementation of the Commission's Rules may significantly and adversely affect the ability of TIA's members to export their products. Present export restrictions

prohibit the transfer or export of certain high technology processes, procedures and equipment. Incorporation of the technology required to adequately harden ESNs may well run afoul of export restrictions applicable to domestic cellular telephone equipment. Unlike the authentication methodology, which requires sophisticated software to be inserted into relatively unsophisticated microprocessors in subscribers units, ESN hardening methodologies likely to be used by manufacturers will require the insertion of sophisticated encryption hardware into subscriber units. The authentication software can be deleted from subscriber units intended for export far more easily and cheaply than the encryption hardware required for ESN hardening. Additionally, virtually all of the issues to be confronted with regard to the export of units incorporating authentication features have already been addressed by TIA members working with the relevant government agencies, whereas these efforts would have to be begin anew if the ESN hardening features are required by the Commission. In short, requiring ESN hardening will greatly disrupt and increase the cost of manufacturing cellular subscriber units for export because separate units would have to be manufactured for domestic and foreign systems. Moreover, the units that would be exported into foreign markets without ESN hardening features constitute a supply of units that might return to the United States in a "gray market," ready for fraudulent use, thus further undercutting the likelihood that the FCC's ESN hardening efforts would be successful.

C. Institution of the Stay Will Not Adversely Affect Interested Parties

29. Because adoption of the Commission's Rule will not be applicable to units presently in the field, or sold in the future pursuant to existing type acceptance authorizations, deferring the enforcement of the new Rule will similarly not have an adverse effect on any interested party. Indeed, as indicated above, by the time the new Rule could be implemented, the

industry's authentication features will have already been implemented, thus rendering the ESN protections adopted by the Commission obsolete. For this reason, staying the implementation of these new procedures until the FCC reconsiders its decision as requested by TIA, will have absolutely no adverse effect on any party interested in the outcome of this proceeding.

30. It is important to note in this regard that the relevant industry groups, such as TIA's TR45 committee, the CTIA Anti-Fraud Task Force, and law enforcement agencies are already are working together diligently to devise and implement authentication procedures and features to combat cellular fraud. TIA hereby pledges to continue its efforts in this regard and to work closely and diligently with CTIA, law enforcement agencies and similarly interested parties in an effort to adopt and implement effective anti-fraud features as soon as practicable.

D. The Public Interest Would be Served by Adoption of the Stay.

31. The foregoing analysis reveals that the benefits resulting from the stay far outweigh any burden or costs resulting from stay of the Rules which are the subject of TIA's associated Petition. The costs of developing and implementing necessary procedures, the cost of disruption in the repair, service upgrades and export markets, and the inconvenience and concern to consumers could be avoided by adoption of the stay and the allowance to manufacturers and other industry groups of sufficient time to consider and adopt alternative and preferable anti-fraud procedures. For this reason alone, the public interest would be served by adoption of the stay for the limited time requested.

32. It is important to note that, in the past, the Commission has stayed the effective date of a Report and Order for reasons nearly identical to those presented by TIA in this Motion. For example, in the "Cable Selector Box" proceeding, In the Matter of Amendment of Part 76 of

the Commission's Rules Concerning Carriage of Television Broadcast Signals by Cable Television Systems, Memorandum Opinion and Order, 2 FCC Rcd 3593 (1987), several parties contended that the Commission's input selector switch requirements were "unworkable and contrary to the public interest." Specifically, petitioners argued, *inter alia*, that (1) the requirements would not provide an effective means of meeting the Commission's goal of ensuring that cable subscribers have access to off-the-air television signals; (2) the implementation of the requirements would be prohibitively expensive; and (3) any benefits of the input selector switch approach would be more than offset by increased costs and technical problems. Id. at 3594. Another petitioner argued that, in the long run, the use of internal, rather than external, selector input devices, would cost less and be technically superior. Id. at 3597-8. The Commission apparently considered petitioners' aggregate concerns serious enough to stay, on its own motion, the effective date of the input selector switch requirements. Stay Order, 2 FCC Rcd 603 (1986). TIA submits that the public interest similarly would best be served by a stay of the new § 22.919's effective date as requested herein.

IV. CONCLUSION

33. Wherefore, the Mobile and Personal Communications 800 Section of the Telecommunications Industry Association, for the foregoing reasons, requests the Commission to stay certain portions of Rule 22.919, as adopted in the *Report and Order* released in this proceeding, pending the Commission's review of the Petition for Clarification and

Reconsideration filed concurrently by TIA. This Motion meets the four-part test as enunciated in Virginia Petroleum Jobbers and Holiday Tours. Therefore, a grant of TIA's stay clearly serves the public interest.

Respectfully submitted,

THE MOBILE AND PERSONAL COMMUNICATIONS 800 SECTION OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION

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