

Before the  
Federal Communications Commission  
Washington, D.C. 20554

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FEB 10 1994

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of )  
)  
Petition to Amend Part of the )  
Commission's Rules to include )  
Terminal Equipment Connected to )  
Basic Rate Access Service Provided )  
via Integrated Services Digital )  
Network Access Technology )

and )

In the Matter of )  
)  
Petition to Amend Part 68 of the )  
Commission's Rules to include )  
Terminal Equipment Connected to )  
Public Switched Digital Services )

and )

Correction of Part 68 Typographical )  
Errors, Clarifications and a Proposal )  
for Part 68 Registration Revocation )  
Procedures )

CC Docket No. 93-268

RM 7815

RM 6147

**TIA's COMMENTS**

**User Premises Equipment Division of  
the Telecommunications Industry  
Association**

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February 10, 1994

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## SUMMARY

TIA has reviewed the FCC's NPRM and used the technical experts of TR-41 and its subcommittees to evaluate the proposal. TIA supports adding Integrated Services Digital Network ("ISDN") and Public Switched Digital Service ("PSDS") to the FCC's Part 68 Registration Program with the recommended changes, corrections, and clarifications noted in these Comments. TIA will shortly be filing a Rulemaking Petition seeking to harmonize Part 68 with the Canadian attachment document, CS03. TIA is willing to address some of the technical issues raised in this NPRM, in the work supporting TIA's Petition. For example, ISDN services are already included in CS03, and it would take minimal effort to incorporate this service in the harmonization effort.

Although many of the issues TIA addresses are detailed technical items, there are some policy issues presented by the FCC's proposals. For example, the pending reconsideration in CC Docket No. 88-57 could have an impact on ISDN and PSDS. TIA also urges the FCC to undertake a review of the process of changing Part 68, since the North American Free Trade Agreement specifies harmonization of technical attachment requirements and this also requires harmonization of the intervals to implement harmonized requirements.

TIA is willing to meet with FCC Staff to further clarify any of TIA's Comments.

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**TIA's COMMENTS**

The User Premises Equipment Division ("UPED") of the  
Telecommunications Industry Association ("TIA") hereby offers its Comments in  
response to the FCC's Notice of Proposed Rulemaking,<sup>1</sup> as modified by the

<sup>1</sup> See Notice of Proposed Rulemaking, FCC 93-484, adopted, October 22,  
1993, released, November 22, 1993.

FCC's Errata and Order Extending Comment Period<sup>2</sup> ("NPRM"). The UPED had the FCC's proposals to add Integrated Services Digital Network ("ISDN") access and Public Switched Digital Service ("PSDS") to Part 68 reviewed by its Engineering Committee TR-41, and Subcommittees TR-41.4, 41.8, and 41.9. These Comments are based upon those technical reviews.

### DISCUSSION

**TIA supports adding ISDN and PSDS to Part 68, however, the FCC needs to streamline its Part 68 Rulemaking process.**

TIA supports adding ISDN and PSDS to the FCC's Part 68 Registration Program with the recommended changes, corrections, and clarifications noted below. However, this NPRM demonstrates a deficiency in the current process to add new services to Part 68. The Ameritech Petition for Rulemaking to add PSDS to Part 68 ("Ameritech Petition") was filed October 26, 1987. The Southwestern Bell Telephone Company Petition for Rulemaking to add ISDN to Part 68 ("SW Bell Petition") was filed August 23, 1991. Delays of 2 to 6 years to have an NPRM issued, and then the delay until an implementing Order is adopted, are not in the Public Interest when technology is changing in a matter of months or a few years and the rate of technological change is ever accelerating.

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<sup>2</sup> See Errata, and Order Extending Comment Period, DA 94-46, released January 12, 1994 ("Errata Order"). The Errata Order extended the dates for Comments until February 10, 1994, and Reply Comments until February 25, 1994.

The U.S. Government has agreed with the Governments of Mexico and Canada in the North American Free Trade Agreement ("NAFTA") to seek harmonization of terminal equipment attachment rules. Even if technical requirements were quickly harmonized, if the process to change rules is not also harmonized with similar time intervals across the three nations, then harmonization of technical requirements will quickly fall out of synch. The FCC should evaluate its process used to change Part 68 and streamline the process to allow more timely rule changes. Relying on consensus industry positions might be one method for the FCC to consider.<sup>3</sup>

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<sup>3</sup> TIA will shortly be filing with the FCC a Petition for Rulemaking to amend Part 68 that is the result of three years of industry effort under the Joint Committee of the Technical Task Force of the Canadian Terminal Attachment Program Advisory Committee ("TAPAC TTF") and experts from TIA Subcommittee TR 41.9. These efforts sought to harmonize the technical requirements of Part 68 and the Canadian attachment document CS03. It should be noted that "harmonizing" the requirements does not mean that the requirements are identical. For a variety of reasons, the negotiators agreed on minor differences, often involving requirements imposed by standards outside the purview of the formulating groups. There was give and take on both sides throughout the process. The harmonized requirements were developed as the result of a carefully planned process that was supported by a commitment in resource support by the parties having a material interest in the agreed-to objectives. On February 18, 1994 TIA will be holding an industry seminar with participation by the experts from the US and Canada to answer questions about the final document. TIA has been advised that the process of filing and issuing an implementing Order in Canada will take a few months. This should be contrasted with the current time intervals for FCC Part 68 Rulemaking activities. TIA would like to work with the Commission and others in the industry to streamline these intervals.

TIA is prepared to include the rules proposed in the NPRM with the other proposed harmonization changes in order to facilitate a timely implementation by the Commission, if requested to do so by the FCC.

**TIA will include a new through-gain Table in its Petition to Harmonize Part 68 with CS03**

In the NPRM, paragraph 5, the FCC notes:

AT&T states that through-gain limitations in Section 68.308(b)(5) should be established for ISDN services. We understand that this is a current project for Telecommunications Industry Association's TR-41 Committee, and we anticipate appropriate recommendations will be provided in this proceeding.

TIA's Committee TR-41 has completed the referenced work and TIA will propose in its Petition a complete new through-gain Table that will also include changes for connections other than ISDN along with the supporting rationale for the changes.

However, in analyzing the FCC's proposed Through-Gain Table in the NPRM, TIA notes that the headings in Columns 4 and 5 and Rows 4 and 5 have been changed from Subrate 1.544 Mbps Satellite 4-W and Subrate 1.544 Mbps Tandem 4-W to DDS/HCC Digital PBX Satellite 4-Wire and DDS/HCC Digital PBX 4-Wire, respectively, with no explanation as to why these changes were made. It appears that the term "DDS" is being used in place of the term "Subrate." TIA questions the need for this change especially since the term "Subrate" is still used throughout the text and is still included in the definition section. In addition, TIA notes that the term "HCC" is used in other parts of the Table and seems appropriate, but it would be helpful if a precise definition of HCC was provided in the rules.

**Changes are required in Section 68.308.**

Section 68.308(h)(2) must be modified in the Title and other appropriate paragraphs to also refer to ISDN Primary Rate Access ("PRA") wherever there is a reference to 1.544 Mbps service. In addition, TIA recommends that the pulse template specified in Table III be modified to allow a maximum pulse height of 3.6 Volts and for the Option A pulse to fall within the template shown in Attachment A to these Comments. These changes would also apply to 1.544 Mbps service and are consistent with the industry-adopted standards for these services in both the U.S. and Canada. (See, for example, ANSI/EIA/TIA 547-1989)

**The Zero Level Decoder definition should be changed.**

TIA recommends that the Zero Level Decoder definition be amended to state that it shall comply with the  $\mu$  255 Pulse Code Modulation ("PCM") encoding law as specified in ITU-T (formerly CCITT) Recommendations G.711 for Voiceband encoding and decoding.

**On-hook and Off hook are not meaningful for ISDN.**

The terms "on-hook" and "off-hook" are not meaningful for ISDN services where signaling is done over the D channel. TIA is prepared to provide recommended terminology for these conditions if requested to do so by the FCC.

**Plug and Jacks for ISDN raise thorny issues.**

In the NPRM, paragraph 6, the FCC discusses some of the debate over the types of plug-jack connectors to be used for ISDN services. This debate also needs to be considered in the context of the FCC's decision in CC Docket No. 88-57. In that Docket, for simple wiring, the FCC removed the old requirement to have a telephone company-supplied Network Interface Jack ("NIJ") at the Network Interface. The FCC allowed consumers to hardwire as long as they did not access the protector. TIA, in that proceeding, strongly urged the Commission to maintain the NIJ as a "circuit breaker" for simple wiring. Many of these issues have been pending on reconsideration for over three years. If the FCC maintains its policy of not requiring a NIJ for simple wiring, then the issue could be moot. If the service providers intend to provide a NIJ anyway, then whether it is a 6-pin or 8-pin jack becomes an issue. The current rules state that the customer determines the jack configuration at the interface. Section 68.502 states: "This section describes connection configurations which telephone subscribers may request their local telephone company to provide, in accordance with §68.104 of these rules. In the absence of a request for a specific jack configuration, the telephone company shall install the standard jack depicted in §68.502(a)(1)" (emphasis added). Further, this section also states: "If a telephone subscriber wishes to have the telephone company install a standard jack other than the one depicted in §68.502(a)(1) below, he shall specify the appropriate [Universal Service Ordering Code ("USOC")] when requesting the installations." Section 68.104 does not require a jack at the interface for simple wiring, but does state that: "Any jack installed by the telephone company at, or constituting, the demarcation point shall conform

to subpart F of this part." Conforming to subpart F would include the customer right to specify the type.

Presumably, the customer would want the jack that would mate with the plug on the equipment purchased. TIA believes that current industry and international standards specify an eight-position plug for ISDN. In NAFTA, the US Government and Canadian and Mexican Governments have expressed a preference for international standards. TIA's Residential Wiring Standard for jacks installed beyond the NIJ also specifies an eight-position jack. TIA believes that manufacturers will design and register their equipment to meet these national and international standards.

That is not to say that a particular installation could not work with a 6-position jack at the NIJ, and 8-position jacks throughout the premises. Equipment that had 8-position plugs would still mate in all uses within the premises if the premises were wired per TIA standards. The problem would only come up if the customer wanted to plug the equipment in at the NIJ, possibly because the customer was trying to isolate a wiring or other problem. An 8-position plug will not mate with a 6-position jack without the use of an adapter.

Thus, the problem is one of determining who picks the jack configuration if a jack is supplied at the interface, either as a result of FCC Reconsideration in CC Docket No. 88-57 requiring such a jack for simple wiring, or if the service provider determines it will supply jacks in accordance with Subpart F. Current

FCC policy is the customer chooses, based on the equipment purchased and the plug type is selected by the manufacturer and registered with the equipment.<sup>4</sup>

TIA does not believe use of adapters should be the preferred method of interconnection. Adapters are useful for non-standard applications.

The same issues discussed for ISDN would be applicable to PSDS since the customer is the one who chooses the jack configuration at the NIJ and also for in-premises jacks by specifying a TIA standard installation.

**It is not clear that the scrambling algorithm proposed in Section 68.308(h)(3)(ii) is required to prevent harm.**

In its original Petition for PSDS, Ameritech stated that: "The technology specific scrambling variations assure sufficient pulse density thus preventing crosstalk in adjacent services caused by low pulse density." (Ameritech Petition at 5) Further, in the Appendix, p. 13, to its Petition, Ameritech stated:

The proposed requirements on the digital signals of terminal equipment connecting to PSDS are needed to control the level of crosstalk interference into analog carriers in adjacent binder groups, or into other digital services. The scrambling of the digital signal prevents the generation of discrete frequency components, thus ensuring the sufficient density of pulses needed for timing recovery and to prevent crosstalk interference in adjacent systems.

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<sup>4</sup> Manufacturers may register equipment with a variety of plug types in order to provide the customer more flexibility and a greater degree of choice. Complex systems still require a telephone company-supplied NIJ. See §68.104.

In its Comments on the Ameritech Petition, US West, pp. 4-5, noted that "a party seeking to expand the scope of Part 68 bears a heavy burden of demonstrating 'actual' network harm, or at least of the substantial probability of network harm." US West at 6 then goes on to state that one of the alleged harms is "crosstalk" and that "Ameritech would give the impression . . . that crosstalk will be prevented by . . . pulse density specifications."

In its Comments to the Ameritech Petition, BellSouth also alleges that the rules proposed by Ameritech go beyond harms to the network and contain "performance standards." (BellSouth at 2) BellSouth states (Id.): "[T]he proposed rules specify the exact pulse repetition rates, output pulse templates and scrambler characteristics used by AT&T and NTI. It is highly unlikely that other manufacturers will design their products to these performance-related standards . . ." (emphasis added)

Given this discussion in the Comments, TIA is surprised there is no discussion of the harm vs. performance issue in the NPRM. Based on the technical review in TR-41.4, TIA is not sure that the exact scrambling algorithms need to be contained in Part 68. If some lower pulse density would meet the threshold of harm prevention then this lower threshold should be used. For example, a requirement to have a "sufficient pulse density to avoid cross-talk" might be all that is required without locking in particular manufacturers' designs in the rules. TIA recommends that the FCC require a more rigorous demonstration by Ameritech that these proposed technical requirements are the lowest threshold for harm prevention, as opposed to a performance threshold. If that burden cannot be met, then the scrambling rules should be deleted.

**Other transmission rates need not be considered.**

In the last sentence of NPRM paragraph 7, the FCC asks for comments on inverse multiplexing and whether other bandwidths (or other subrates TIA assumes) should be added to the rules. In the context of the paragraph, it is not necessary to consider other transmission rates because the Customer Premises Equipment ("CPE") can handle n(56/64) Kbps channels and do the inverse multiplexing.

**The FCC should clarify the number of copies of a 730 Form that are required.**

The FCC is proposing to change the current rule requirement of an original and two copies of a 730 Application to an original and one copy. (See proposed §68.200) TIA questions whether even this many copies are required since the February 1994 issue of the Form 730 Application Guide, Rev C-253, on the back of the 730 Form, states: "Prepare ONE complete unbound copy . . ." In addition, page 1-1 of the Form 730 Application Guide also states a requirement for only ONE copy. This should be clarified in the final rules.

**The FCC should clarify the intent of Section 68.200(d).**

In the proposed Section 68.200(d) the FCC advises that the Common Carrier Bureau will publish a "list of acceptable test procedures." There is concern that this language could mean that the FCC will actually determine and publish its own test procedures. TIA thinks the intent here would be clearer if the words "with a list of" were replaced by the word "referencing."

**The tolerances for PSDS should be eliminated.**

In the proposed Section 68.308(h)(3), the FCC specifies a tolerance of plus or minus 5 pulses per second for Type II and Type III PSDS. TIA has reviewed this requirement with the manufacturers of this equipment and has determined that this tolerance is too restrictive and, in any event, not required to be in the rules. By comparison, the tolerance for 1.544 Mbps is plus or minus 75 pulses per second. (See Section 68.308(h)(2)(i).)

Since these services receive their clock from the serving central office, the tolerance of the clock for the terminal equipment is not a network harm concern. TIA suggests that the nominal rates of 144,000 pulses per second (for Type II) and 160,000 pulses per second (for Type III) be referred to without any additional qualifiers.

**TIA questions whether the limitation to only "telephone companies" is appropriate in the definition of Test Equipment.**

In the proposed definition of Test Equipment, the FCC has exempted certain devices "used by telephone companies" solely for network installation and maintenance activities, from a registration requirement. TIA questions whether this limitation to only telephone companies is warranted. Interexchange carriers, Competitive Access Providers, and other service providers use similar handheld equipment for network installation and maintenance activities and no rationale has been stated why such uses should not receive the same exemption.

**Tables IV(A) and (B) are different than the Rulemaking proposal.**

The Errata Order added Tables IV(A) and (B) that were missing from the original NPRM. In comparing the FCC's proposal to the proposal presented by Ameritech and modified based on AT&T's Comments, TIA notes that the FCC's values for Pulse Height and Pulse Width are different than those proposed by Ameritech. There is no discussion in the NPRM as to why the Commission made these changes. TIA directs the Commission to the TIA Standard for PSDS for additional information. (See NPRM, footnote 9)

**There still appears to be typographical errors in Section 68.3 and Section 68.310(l).**

Although the FCC's Errata Order cleaned up some typographical errors, there still seems to be two remaining errors. In Section 68.3, in the definition for ISDN Primary Rate Interface, TIA believes "ring-2" should be "Ring-1." In Section 68.310(l), the proposed rule states twice that the metallic termination used for the longitudinal balance measurements for 1.544 Mbps shall be 100 Ohms plus or minus one percent. The only difference is that in one case the "O" in Ohms is capitalized, in the second appearance it is lower case.

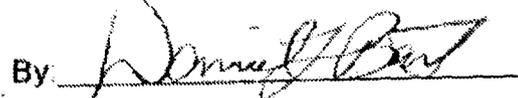
**CONCLUSION**

TIA generally supports the FCC's proposals provided they are modified or clarified as suggested by TIA's Comments.

Respectfully submitted,

**User Premises Equipment Division of  
the Telecommunications Industry  
Association**

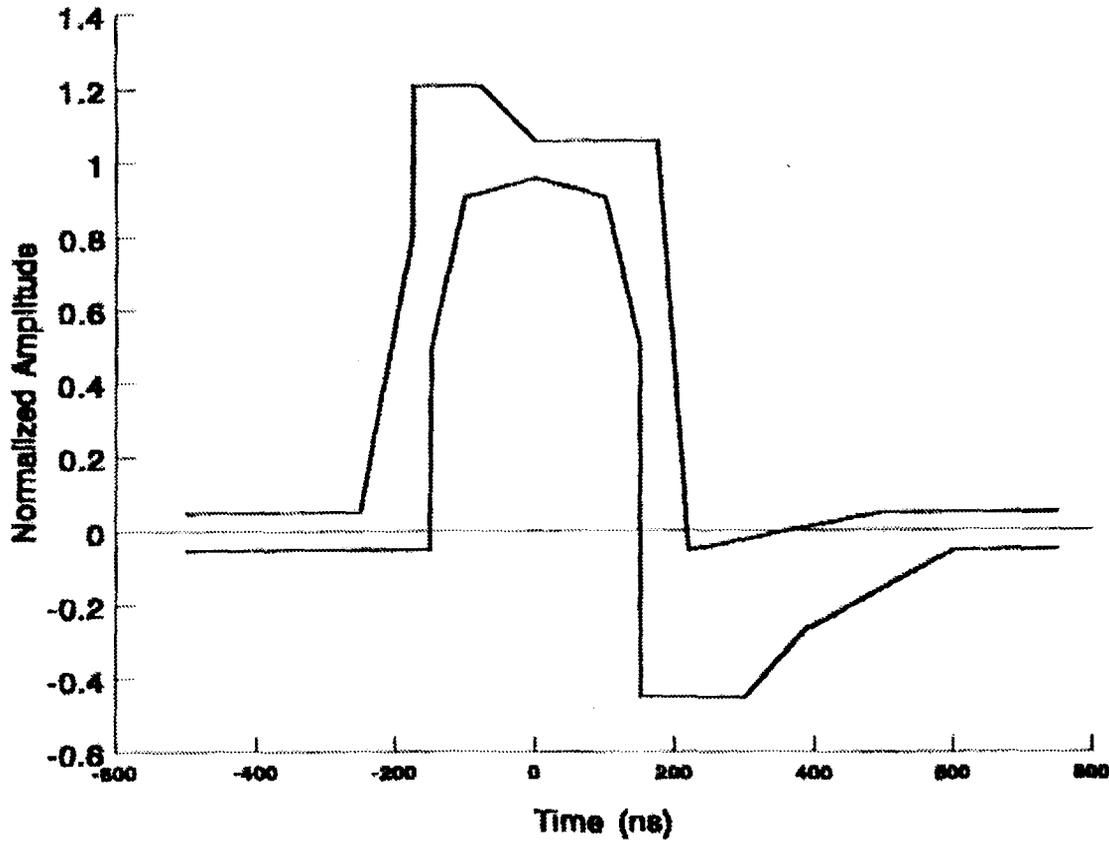
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MAXIMUM CURVE

NANO-SECONDS	-500	-250	-175	-175	-75	0	175	220	500	750		
NORMALIZED AMPLITUDE	.05	.05	.8	1.2	1.2	1.05	1.05	-.05	.05	.05		

MINIMUM CURVE

NANO-SECONDS	500	-150	-100	-100	0	100	150	150	300	396	500	750
NORMALIZED AMPLITUDE	-.05	-.05	.5	0	.05	0	.5	-.45	-.45	-.28	-.05	-.05

Figure 68.308 (e) Ref. EJA/TIA 547-1989)  
Isolated Pulse Template and Corner Points for 1.544 Mbps equipment

Note: The pulse amplitude is 2.4 to 3.6 V. (Use constant scaling factor to fit normalized template.)