



Application Note #115:

Conveyed FCC Part 68 Approvals

INTRODUCTION

This application note briefly discusses the U.S. government policy concerning conveyed approval as permitted under the requirements of FCC Part 68 regulations.

CONVEYED FCC PART 68 APPROVAL

What you need to know about conveyed FCC Approval per Part 68. The United States of America via its approval agency, the FCC, is the only country in the world that allows modem, fax and voice PSTN (Public Switched Telephone Network) interface component products to be pre-approved independent of their end use or application environment. Components that meet specific bandwidth, energy and isolation requirements as defined in FCC Part 68 may be pre-approved. Granted pre-approvals are then conveyed to the end user if the end user meets certain prescribed conditions. These conditions involve end application use, end product labeling and end user documentation. Although the FCC prescribed conditions are generic, end application requirements may cause some product specific variations.

Conveyance of Cermetek FCC Part 68 Approvals. Cermetek supplies each Part 68 pre-approved product with a second label that must be applied externally to the end product. Additionally, product specific user manual instructions are defined in Cermetek's data sheets and these must be included in the end product's user documentation. When mandatory external components are specified on Cermetek's data sheets, these components must be included in the end application circuitry along with the pre-approved component. Lastly, when the pre-approved Cermetek component is included in a design at the PCB level, the PCB traces used for connection between the component and the RJ11 jack must adhere to the trace widths and separations defined in the Cermetek data sheet. When all of these conditions are followed, the FCC Part 68 Approval is preserved. Suppression components, such as are recommended in various Cermetek data sheets for EMI/RFI noise suppression, or as required to obtain FCC Part 15A/B approval, may be added to the Tip and Ring PSTN line traces without violating the conveyed FCC Part 68 pre-approval, provided that they are compliant with the isolation requirements.

Limitations to Existing Cermetek FCC Part 68 Pre-Approvals. All Cermetek modems are pre-approved for data use only. This approval is sufficient for typical data applications. However, some Cermetek modems have a voice injection port which may be used for shared voice or DTMF applications. If the voice injection port is used, the user must seek incremental FCC Part 68 approval to cover the voice or DTMF shared use. Incremented approval is a simple process that requires the user's design to be submitted to an independent FCC consultant for supplemental testing and registration. This process takes about three to five weeks and costs about \$1000. The consultant will provide guidance through the process and Cermetek will assist with technical support as needed. Cermetek offers a list of suggested consultants for your convenience. At the end of the incremented approval process, the FCC will issued a new registration number. The purpose of the additional testing is to insure compliance with the power and bandwidth limitation requirements specified by FCC part 68 for voice. The suggested application circuits shown in our data sheets are provided to facilitate the supplemental approval process.

SUMMARY OF REQUIREMENTS

In summary, to preserve the conveyed FCC Part 68 approval for use in data only applications, the end user must:

1. Install the pre-approved Cermetek modem or DAA product as close as possible to an approved RJ11 jack.
2. Follow PCB trace width and spacing recommendations.
3. Install all mandatory external components.
4. Use FCC Part 68 rated RFI/EMI suppression components, if required.
5. Place the FCC Part 68 registration label on the external portion of the end product.
6. Include FCC mandated user manual instructions in the end product documentation.

Although the attached "Bill Board" article dates to 1995, the questions and answers are, nonetheless, relevant. See attached FCC "Billboard" note for additional comments.

THE

WILLIAM H. VON ALVEN, EDITOR

BILLBOARD

NO. 103 – AUGUST 1995

A NEWSLETTER FOR PART 68 APPLICANTS

Questions for TIA TR-41.9

I sent **Ahn Wride**, CCL, who chairs the TR-41.9 some questions for their last meeting. Here they are and the responses:

1. Setting of synthesized voice levels associated with PC modems. Some software associated with these cards permits the operator to adjust levels.

Response: The card must limit the maximum output to the network to less than the allowed maximum level of its class of service (i.e., less than -9dBm for loop start, less than -15dBm for tie trunk, etc.), in the worst case scenario (with the input levels to the card at maximum, etc.)

Implementation: When you file to register a card that has synthesized voice capability, we will expect you to check to see that it complies with this requirement.

2. Registration of Standalone Surge Protectors. In the past we have not required registration of these devices so long as they were U.L. listed. However, we have several requests for registration. TR-41.9 looked into the matter and made the following suggestions:

Response: They must be Part 68 registered due to their potential effect on compliance of the associated registered equipment with the requirements of:

68.302 (surge tests); 68.304 (leakage); 68.308 (in-band and out-of-band noise); 68.310 (longitudinal balance); and 68.312 (on-hook impedance).

Implementation: There you have it. We will establish the product classification code XP-External Surge Protectors.

3. Dielectric ratings of components in the network interface circuitry. We do not have a component approval program; only the equipment gets tested to Section 68.304 leakage current requirements. The circuit under test gets ramped up to 1000Vrms over a 30-second period; then held there for 60 more seconds. We aren't sure how component manufacturers rate their parts. One lab tells me they found components with 1000Vdc ratings fail at 200Vrms when tested to our Section 68.304 requirements. Some manufacturers establish ratings, we are told, at a given voltage level for one second. So apparently the ratings you see in catalogs are suspect when compared with our 68.304 requirements. We also have had questions re the 10mA leakage current limit (since most measurements are found in the microampere region).

Response: (a) If a component in the telephone interface circuit is relied upon for dielectric isolation barrier, then it is recommended that this component be rated at 1000Vrms. (b) There is no recommendation for changing the present maximum leakage current of 10mA peak.

Implementation: Don't count on component manufacturer's ratings. The real test is Section 68.304.

THE WILLIAM H. VON ALVEN, EDITOR

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4. Transferability of registration. We had a question from Jack Marshall of DS&G:

A customer of ours installed a registered modem module into his product. The tip and ring traces are present on more than one board in the system (i.e., not just the board that the module plugs into). Does our client's product have to be registered? If so, what type of filing is appropriate? We have advised our client to have at least out-of-band noise, leakage and surge testing done to verify that the module complies in their system.

Since the registered module does not have a connector of its own, it seems like the device should have some type of registration to at least verify a valid connector type. Equally important are the trace/component spacings; these should be verified by performing the leakage test and longitudinal surges.

I responded to Jack that we had established a procedure (Item 7, page J-3 in our Application Guide) many years ago to handle these situations. In a nutshell, the manufacturer of the registered module provides the customer with appropriate installation information. We have not heard of any real disasters from this policy.

Response: This contribution is being held for further consideration.

5. Integrated Network Corporation proposal on spectrum requirements for subrate digital devices.

I received a suggestion from **Don Joffe** of INC for including frequency-domain test procedures for subrate devices as option test method to the currently required time-domain template. In his communication to me, he says:

FCC Part 68 specifies pulse shaping requirements for DDS which are to limit interference with other circuits and services. It does this by specifying amplitude limits and filtering.

Simple time-domain methods based upon pulse template will often disqualify a product which complies with the FCC requirement. Existing pulse templates do not recognize the possible variations in pulses which meet both the letter and the spirit of Part 68. This problem is especially severe where additional filtering is applied to the pulse. (e.g., 2.4, 4.8 and 9.6kbps).

Don attached his technical proposal along with his MathCad analyses.

Response: This contribution is being held for further consideration in the long-term along with a second proposal on the same subject.

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Printed in U.S.A

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