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**Model Standards
for the Certification of
Installers for
Customer Premises Equipment
and Inside Wiring
in the Eastern Caribbean**

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1 Summary and Introduction

This report presents model standards that might be used by telecommunications regulators in the Eastern Caribbean to certify the installers of customer premises equipment (CPE) and inside wiring. These model standards were written specifically to help regulators in the five Eastern Caribbean countries (St. Kitts & Nevis, Dominica, St. Lucia, St. Vincent & the Grenadines and Grenada) that have established the Eastern Caribbean Telecommunication Authority (ECTEL). Different approaches to standards-making are discussed, considering the current circumstances in the ECTEL countries. This document is an elaboration on Section 2.5 of a related, earlier report prepared by the same author.¹

2 Discussion of Model Standards

Standards for the certification of CPE and inside wiring installers might be concerned with three different issues:

- standards to prevent harm to the local exchange carrier (LEC) network;
- standards to prevent harm to users and property; and
- standards to insure adequate performance and compatibility with the LEC network.²

In the United States, CPE and inside wiring installer certification standards to prevent harm to the LEC network are established by the FCC. Standards to prevent harm to users and property are established by joint action of state governments, trade unions and electrical contractor associations. Each of these activities is discussed below.

CPE and inside wiring installer certification standards to insure adequate performance and compatibility with the LEC network don't exist as such in the United States. While CPE and inside wiring should be planned to function properly and to deliver value over the entire life cycle of the investment, such considerations are viewed as beyond the purview of the public-policy process.

¹ Williams, John G., *Regulatory and Public-Policy Guidelines for Customer Premises Equipment and Inside Wiring Competition in the Eastern Caribbean*, Arlington, Virginia, Carana Corporation, March 1, 2002.

² See *ibid.*, Sections 2.6 through 2.8, for a discussion of these three issues.

2.1 Standards to Prevent Harm to the LEC Network

For simple inside wiring (i.e., up to four lines for business and residential service) the FCC allows the subscriber or premises owner to install wiring on the subscriber's side of the demarcation point.^{3,4} For simple inside wiring installed by others, and for all more complex wiring, the job must be supervised by someone with the appropriate training and experience.^{5,6} In this second case, all operations associated with installation, connection, reconfiguration and removal (other than final removal of the entire premises communications system) must be performed under the supervision and control of a supervisor as defined below:^{7,8}

(c) Supervision. Operations by installation personnel shall be performed under the responsible supervision and control of a person who:

(1) Has had at least six months of on-the-job experience in the installation of telephone terminal equipment or of wiring used with such equipment;

(2) Has been trained by the registrant of the equipment to which the wiring is to be connected in the proper performance of any operations by installation personnel which could affect that equipment's continued compliance with these rules [i.e., the FCC rules in Part 68];

(3) Has received written authority from the registrant to assure that the operations by installation personnel will be performed in such a manner as to comply with these rules.⁹

(4) Or, in lieu of paragraphs (c) (1) through (3) of this section, is a licensed professional engineer in the jurisdiction in which the installation is performed.¹⁰

³ See Section 213 of Part 68 of the FCC's rules (cited as 47 CFR 68.213).

⁴ The *demarcation point* is the point of connection between LEC outside plant facilities and the inside wiring or customer-premises terminal equipment at a subscriber's location.

⁵ 47 CFR 68.214

⁶ 47 CFR 68.215

⁷ The supervisor and installer may be the same person.

⁸ Premises wiring that is fully protected by a *protective coupling device* (which shields the LEC network from potential harm caused by inside wiring and CPE) is not included in this regulation. However, such protective coupling devices are not common in the United States.

⁹ The *registrant* here refers to the party that registered the CPE being installed under the FCC's registration program.

¹⁰ 47 CFR 68.215(c)

2.2 Standards to Prevent Harm to Users and Property

The primary procedures used to certify installers of CPE and inside wiring that address the issue of preventing harm to users and property are:

- Apprenticeship;
- Classroom training; and
- Testing and licensing.

Each of these methods is now discussed.

2.2.1 Apprenticeship

A formal apprenticeship program that trains installers of inside electrical wiring (including wiring used for telephone systems) may require candidates to work for several years under the supervision of someone who already is certified to perform such work. (During this time, of course, such a candidate is paid, although at a reduced rate compared with that of a fully-certified installer.)

In the United States, such apprenticeship programs often are sponsored by contractors associations and labor unions. The National Joint Apprenticeship and Training Committee (NJATC) of the National Electrical Contractors Association and the International Brotherhood of Electrical Workers coordinate such a program. Workers are trained as: *outside electrical power linemen*, *inside electrical power wiremen* (who install wiring in commercial and industrial buildings), *residential power wiremen*, and *voice-data-video installer technicians* (who install inside circuits and equipment for telephones, computer networks, video distribution systems, security and access control systems and other low voltage systems).¹¹ The apprenticeship time for this latter job category (which included telephone inside wiring installation) is three years.

While the NJATC provides guidance for these programs at the national level, program implementation is handled at the state, regional or local level by related groups. For example, in central New York state the Central New York Joint Apprenticeship and Training Center is operated by the Local 43 chapter of the International Brotherhood of Electrical Workers in cooperation with the Finger Lakes National Electrical Contractors Association.¹²

One problem in establishing an apprenticeship program in the ECTEL countries is deciding who the first group of candidates should be apprenticed *to*. Unless there is

¹¹ See <http://www.njatc.org/> and especially http://www.njatc.org/app_installer.htm

¹² See: <http://www.cnyjatc.org/>

another method of certifying CPE and inside wiring installers, there is no way to create a group of mentors for the first group of apprentices. One practical solution to this problem may be to “grandfather” as certified a group of current and former employees of Cable and Wireless who have practical experience with this type of work.

2.2.2 Classroom Training

The NJATC programs discussed above also require that several hundred hours of classroom training be completed during the several years of apprenticeship. For example, the Central New York Joint Apprenticeship and Training Center requires apprentices to attend classroom sessions two evenings a week during the academic year.

The American Council of Education permits college credit equivalency hours to be awarded for completion of NJATC apprenticeship programs. Many colleges and universities in the United States accept these credits on a transfer basis.

2.2.3 Testing and Licensing

While the NJATC program might be considered a “best practice” method of helping to insure that CPE and inside wiring is installed safely, other (non-union) ways also may be used to train installers. In the United States, electricians may be trained by the military, by informal apprenticeship programs or by technical training schools that are not accredited colleges or universities.

No matter how training is obtained, most states in the US require electrical contractors to be tested and licensed.¹³ While the safety concerns for low-voltage wiring (such as telephone wiring) are less demanding than for the higher-voltage wiring used in electrical power distribution systems, many states still license electricians for lower-voltage applications.

For example, the Alabama Electrical Contractors Board requires that persons applying for an Alabama electrical contractor or a specialty contractor permit demonstrate a minimum of four years experience, showing that they have designed, planned, laid-out and directly supervised electrical construction activities and the

¹³ The only states in the US not requiring electrical contractors to be licensed are: Illinois, Indiana, Kansas, Kentucky, Missouri, New York, Pennsylvania and Texas. In such states, electrical contractors may still be regulated at the municipal level.

installation of electrical components.¹⁴ Applicants also must pass a written test. The Board supplies an Applicant's Information Booklet, which provides practice questions similar to those used to test the various specialties.¹⁵ Alabama has five categories of electrical contractors, including Low Voltage Specialty Contractors who install telephone wiring.¹⁶

End

¹⁴ The home page for the Alabama Electrical Contractors Board is found at: <http://www.aecb.state.al.us/>.

¹⁵ See: <http://www.aecb.state.al.us/pdfs/appinfoelec.pdf>

¹⁶ The application form for a specialty contractor license, which requires a listing of previous work experience, is found at: <http://www.aecb.state.al.us/pdfs/instrjour.pdf>.