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Decision No. 87920 SEP 27 1977

ORIGINAL

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Investigation on the Commission's own motion into the promulgation of a General Order providing for the procedures and standards to be followed for the interconnection of customer-provided communications terminal equipment to the telecommunication facilities of intrastate telephone utilities.	Case No. 9625
And Related Matters.	Case No. 9177 Case No. 9265 Case No. 9271 Case No. 9323 Case No. 9360 Case No. 9546 Case No. 9600 Case No. 9610 Case No. 9637 Case No. 9652

ORDER DENYING REHEARING AND STAY AND MODIFYING DECISION NO. 87620

Petitions for rehearing and stay of Decision No. 87620 have been filed by Pacific Telephone and Telegraph Company (Pacific) and General Telephone Company (General). These petitions are supported by Continental Telephone Company of California and the California Independent Telephone Association. Petitions for rehearing were also filed by Phonetele, Inc. (Phonetele) and Scott-Buttner Communications, Inc., et al. (Scott-Buttner). Each of the above-named petitioners submitted numerous legal arguments and technical questions pertaining to Decision No. 87620 and General Order 138 (G.O. 138) as grounds for rehearing. Having considered each and every allegation raised in these petitions we are of the opinion that

good cause for rehearing has not been made to appear. However, the technical questions raised by the various petitioners indicates that there should be some clarification and modification of Decision No. 87620 in order to eliminate all ambiguities as to the meaning of our decision.

Certification of PBX and KTS Equipment:

Petitioners (General, Pacific and Scott-Buttner) argue that the Commission has inappropriately adopted the Federal Communications Commission (FCC) solution to the interconnecting of PBX and KTS equipment. The telephone utilities argue that the Commission must wait until the FCC proceeding on registration of interconnecting equipment is completed because the FCC might establish different standards for certification and could conceivably preempt the state rules on certification and interconnection. At the same time the customer owned equipment manufacturers argue that the FCC proceeding has merely stated "problems" and not "solutions"; therefore, this Commission should not rely on the procedure of certifying protective couplers referenced in the subject FCC proceeding. The FCC proceeding on registration of interconnecting equipment has been in progress for some time. It is clear to this Commission from evidence presented before us and from a study of the FCC proceeding that the certification of protective couplers as a means of providing for the interconnection of PBX and KTS equipment is the simplest, most feasible and reasonable method to use. This fact is not in dispute before the FCC. The Commission has not been persuaded by the various petitioners that the status of the FCC proceeding precludes us from taking the action we did.

Protective Couplers:

Sufficient questions have been raised by the various petitioners concerning the interconnection program we are establishing to require further clarification and certain modifications to G.O. 138.

The Commission will change the title of Class 5 equipment (Section 5.1e of G.O. 138) from "Protective Interfaces for Customer-Provided Primary Station Equipment" to "Protective Couplers for Customer-Provided Primary Station Equipment." This change is consistent with the definitions in Section 1.3 of G.O. 138. We are expanding the definition of a "protective coupler" (Section 1.3 of G.O. 138) and allowing the protective coupler being certified to be an integral part of the terminal equipment so long as it is easy to identify. The method of connection between the terminal equipment or protective coupler and the telecommunications network must be through a utility-provided jack or terminal block and be arranged in such a way that disconnection of the customer-provided equipment can occur without disrupting the utility's facilities.

Wiring

The following methods are approved for interconnecting PBX, KTS, and other customer-provided equipment which require two or more central office lines.

(1) Customer-provided equipment may be connected to the utility network through certified protective couplers at the point of connection with utility network.

(2) Customer-provided equipment may be connected to the utility network through protective couplers remote from the point of connection with the utility network.

In case (1) the inter-system wiring is negligible. In case (2) the coupler is remote from the point of connection with the utility's network and some inter-system wiring is required. We recognize the problem in case (2) with regard to the inter-system wiring and the potential of electrical harm if the wiring comes in contact with ground planes or power lines. We therefore will require that in those cases where there is inter-system wiring the installer will be responsible for the installation of customer-provided equipment. Section 2.14 of G.O. 138 has been added to resolve these potential problems in a manner that we believe is appropriate. In those cases

where the coupler is an integral part of the common equipment, yet the remote terminal equipment, acting behind the common equipment, does not share the protective coupler, this remote terminal equipment must be certified.

In those instances where the protective coupler does not meet the signal or pulse criteria given in Sections 5.6, 5.9 and 5.10 of G.O. 138 we will require that equipment working behind the protective coupler, capable of generating signal or pulse information, be certified with respect to Sections 5.6, 5.9 and 5.10. This requirement will eliminate the need to completely certify equipment working behind customer-owned protective couplers. Section 5.1e of G.O. 138 has been amended to include this requirement.

Ground-Start Operation

Pacific and General argue that the decision fails to cover ground-start PBX trunk operations, and therefore, violates Section 5.4 of G.O. 138 which specifies that no direct current energy sources shall be applied to the telephone line at any time. They argue that this requirement cannot be met under full ground-start operations.

At present all ancillary and data equipment within the scope of G.O. 138 is connected to loop-start telephone facilities. However, PBX equipment, depending upon the central office facilities, may be connected either for loop-start or ground-start operation. A loop-start trunk or line uses network control signaling which is compatible with a telephone set. A ground-start trunk uses the intentional connection with earth ground of one trunk wire at the central office to indicate the start and end of a call. The indirect connection of one trunk wire with earth ground at the PBX senses this central office-end connection with earth ground as well as the direct connection of one trunk wire with earth ground and indicates at the PBX the start of an outgoing call. We feel that

G.O. 138, as written, effectively deals with all but one concern about the ground-start operations. We have, therefore, modified Section 5.4a (2) of G.O. 138 to indicate that in the case of ground-start signaling, direct connection of tip to earth ground will be the only allowable D.C. signaling. As far as what guidelines should be followed for a particular central office, the Commission believes that it is the responsibility of the utilities to provide the technical guidelines and specifications of their central office facilities. This does not mean that for equipment bought from an outside vendor the utility must provide support for installation or maintenance at the customer's premise.

Jack, Plugs, and Adaptors

Pacific argues that the Commission should set a definite deadline during which the equipment manufacturers of customer-owned equipment should convert over from the older-type (four-prong) plugs to the newer FCC authorized (miniaturized) plug. Pacific also fears that the Commission's intent is to require the utility, when removing a utility-provided connecting arrangement, to install both jack and plug and that this would constitute a requirement that a utility must work on customer-owned equipment. Pacific further argues that the decision fails to address the question of whether a customer-furnished adaptor must be certified. Moreover, Pacific contends that the requirement that the utilities stock and provide adaptors to permit connection between an older-type plug and a newer-type jack is inconsistent with the approach as adopted by the FCC.

The Commission will set a deadline for the conversion from the older-type plugs to the newer FCC plugs. Pacific, by its Advice Letter No. 12435 filed July 6, 1977 and Supplement filed July 14, 1977, requested and was granted authority, by Resolution No. T-9672, to do the following:

(1) Consolidate the offerings of connecting devices for use with California certified and FCC certified customer-provided equipment.

(2) To limit the offering of the older-type (four-prong) connecting devices to those in place on the same premises on and after February 6, 1978.

(3) To provide for the use of standard FCC authorized (miniaturized) modular connecting devices for all California and FCC certified customer-provided equipment.

We therefore will choose February 6, 1978 to be the effective date when equipment manufacturers are required to convert over from the older-type plugs to the newer-type FCC plugs.

Pacific's fear that a utility will have to work on customer-owned equipment is unfounded. It has been consistent Commission policy that no utility will be required to work on customer-provided equipment without a mutual agreement between the utility and the customer, and our position on this policy remains the same. Therefore, it will be the customer's responsibility to supply the plug. On the subject of adaptors, Pacific contends that the requirement whereby the utilities provide and stock these adaptors is inconsistent with the approach as adopted by the FCC. The Commission believes that most of the customer-provided equipment in the state of California which is now connected to the telecommunications network is done so through simple connecting devices, primarily four-prong plug and jack arrangements, and that adaptors for these would not constitute a difficult stocking problem for the utilities. Since the adaptor is a passive device, no certification is necessary. Customers may purchase adaptors from the utility involved or an outside vendor. In either case, customer must maintain their adaptors.

On-Site Modification of Certifiable Customer-Owned Equipment

Petitioners (Pacific, Phonetele, Scott-Buttner) have raised questions about what action should be taken by the utilities in

removing connecting arrangements in those situations where utility-dictated requirements involuntarily forced the manufacturer or supplier of customer-provided equipment to reconfigure their equipment. Phonetele argues that because of the reconfigurations which have had to be made on their equipment some of these installations would not work properly if the connecting arrangements were removed. This is true because Phonetele's equipment operates differently behind the connecting arrangements as opposed to when there is a direct connection. Although Phonetele's customers do not pay a charge for connecting arrangements, Phonetele requests that the Commission rule that utility-provided connecting arrangements remain in place in those locations where the utility has not been receiving any connecting arrangement charges. Phonetele contends that if the Commission so rules, the telephone subscriber will not be inconvenienced and the manufacturer or supplier of customer-provided equipment will not suffer economic damage.

The questions posed by the petitioners raise important points. There appears to be two situations that have not been adequately addressed in the decision on the subject of PCA removal.

(1) Certifiable equipment reconfigured to perform with a utility- provided PCA where a charge has been paid for the PCA.

(2) Certifiable equipment reconfigured to perform with the utility-provided PCA where no charge has been paid for the PCA.

In both cases, we believe it is the responsibility of the utility to either leave the PCA intact so long as the service is requested or remove the PCA's as ordered elsewhere in Decision No. 87620 and bear the cost of restoring the equipment to its original state. This, in our view, is reasonable since in these instances a PCA was unnecessary and insisted upon by the utilities. Refunds should be made to the customers owning this equipment as elsewhere provided for in Decision 87620.

Certification of Extension Telephone Equipment

General and Pacific argue that the decision fails to exclude party-line service from acceptable class 3 equipment. Pacific expresses concern over whether certified customer-provided equipment can be used behind coin phones and also whether a telephone can be key and/or non-key.

These points are valid, and should be resolved and incorporated in G.O. 138. Party-line service will be excluded from class 3 equipment and no certified customer-provided equipment will be allowed to be placed behind a coin telephone. Extension telephones may be key or non-key so long as they operate off a single central office line.

Illegal Connections

Pacific complains that Decision No. 87620 appears to order refunds subsequent to certification even to those customers who connected equipment to the telephone network without notifying the utility and without paying for PCA devices. This is an incorrect interpretation of Decision No. 87620. Refunds as ordered in Decision No. 87620 need only be paid to those telephone customers who in fact were charged for a protective connecting arrangement.

Miscellaneous Modifications to General Order No. 138

In the application of G.O. 138 several minor deficiencies of both an administrative and technical nature have been brought to our attention. These must be corrected at this time to ensure an efficient operation of the certification program. Several certificate applications filed by equipment manufacturers pertain to equipment that have the ability to monitor and record, without notification, unsuspecting parties in two-way conversations. Commission policy requires that equipment with such monitoring or recording

ability be modified prior to certification by the manufacturer.[1/] Therefore, Sections 1.4a and 2.3b(11) of G.O. 138 are hereby amended to conform to Commission policy of requiring notice to all parties using such equipment of a recording or monitoring.

Since the institution of the certification program under G.O. 138 the Commission staff has received over 20 applications for certification by manufacturers of extension telephones. It is well known throughout the telecommunications industry that normal telephone lines may be connected with one to five paralleled standard telephone ringers. The telephone companies have dealt with this requirement by rating each telephone line with the maximum number of "ringing bridges", or paralleled standard ringing impedances, through the use of tables which account for the factors involved in such a determination. Due to the large numbers and wide varieties of customer-provided equipment, the Commission concludes that a Ringer Equivalence Number (as defined by the FCC) should be included in each application for certification for extension telephone equipment and should be indicated on any such certificate issued by this Commission and also placed on the equipment. The FCC in its "Memorandum Opinion and Order" in FCC Docket 76-242, adopted March 12, 1976, amended Section 68.3 of Part 68 of its Rules and Regulations to include a section on ringer equivalence. For the purpose of defining a Ringer Equivalence Number, this Commission will define ringer equivalence as given in Section 68.312a-1(iv) and 68.312b-4 of Part 68 of the FCC rules and regulations. Sections 2.4 and 5.11 of G.O. 138 will be modified to effect our new policy on ringer equivalence.

As was indicated above, the Commission has received a large number of applications for certification from various manufacturers.

1/ See Decision No. 69477 dated July 27, 1965 and Decision No. 73146 dated October 3, 1967 in Case No. 7915.

In order to ensure the workability of the certification program and to maintain absolute fairness to all parties involved, we believe we must clearly define in G.O. 138 the qualifications of those who may certify equipment for interconnection with the telephone network. Therefore, we have amended Section 2.1a of G.O. 138 to specifically require that certification of customer-provided equipment must be done by a registered electrical engineer with experience in the design or testing of such equipment.

Finally, it has come to our attention that there is some ambiguity in Ordering Paragraph 10 of Decision No. 87620. The intent of this ordering paragraph is to cover those situations where a customer-provided PCA, separately located from the customer's PBX or KTS equipment, replaces the utility provided PCA. This ordering paragraph is not meant to deny refunds in the situation where the customer-owned equipment has had a PCA, now certifiable, as an integral component of the equipment. Therefore, we are modifying Ordering Paragraph 10 to reflect our intent.

THEREFORE, IT IS ORDERED that:

1. Ordering Paragraph 10 of Decision No. 87620 is hereby revised to read as follows:

> "10. No refunds will apply in those instances where a customer-owned PCA that is separate from the customer-owned equipment (without integrated PCA) is substituted for a utility-provided PCA."

2. General Order No. 138 is hereby modified by the changes set forth in Appendix A hereto.

3. Rehearing and stay of Decision No. 87620, as modified hereinabove, is hereby denied.

The effective date of this order is the date hereof.

Dated at San Francisco, California, this 27th day of SEPTEMBER, 1977.

Robert Batinovich
President

Commissioners

I dissent
Vernon L. Sturgeon
Commissioner

Commissioner William Symons, Jr., being necessarily absent, did not participate in the disposition of this proceeding.

Appendix A

MODIFICATIONS OF GENERAL ORDER NO. 138

Section 1.3 Definition - The definition of Protective Coupler is changed as follows:

An arrangement at the interface between utility-owned and customer-provided facilities which effects coupling between the two systems in such manner that no harmful or undesirable voltages, signals, or other physical quantities can pass from the customer-provided equipment to the telecommunications network. This arrangement may be a self-contained device or incorporated as an integral and separately identifiable part of the terminal equipment.

Following new definitions have been added:

Common Equipment - Centrally located equipment of a PBX, KTS, or other switching system that is shared by other components of the system.

Inter-system Wiring - Any wiring required on the utility side of the protective coupler but on the customer's side of the point of demarcation with the utility's wiring.

Intra-system Wiring - Any wiring required on the customer side of the protective coupler.

Revised Section 1.4a

Customer-provided equipment shall not endanger the safety of the utility employees or the public, damage or require changes in or alterations of the equipment or other facilities of the utility, interfere with the proper function of said equipment or facilities, infringe upon privacy of communications, or otherwise injure the public in its use of the utility's services.

Revised Section 2.1a

2.1 Certifying Authority

a. Certification of customer-provided equipment shall be made by a registered electrical engineer who has had direct work experience with the design and/or testing of the equipment specified in Section 5.1 of this General Order. The certifying engineer shall have no interest, pecuniary or otherwise, in any manufacturer, vendor or utility that is a party to the certification proceeding.

Revised Section 2.3b (11)

(11) Statement whether equipment can be used for monitoring or recording purposes and the equipment's method of providing notice to all parties of a communication being monitored or recorded.

Revised Section 2.4b

Upon the filing date of the certificate the Commission shall issue a registration number which along with the ringer equivalence number shall be included on an equipment identification plate attached to the certified equipment. The registration shall become effective on the 30th day following the filing of the engineer's certificate with the Commission unless deferred or suspended by the Commission.

Revised Section 2.14 Inter-system Wiring

Installers of customer-provided PBX, KTS, or other switching equipment that have inter-system wiring as defined in Section 1.3 shall file with the Commission and the particular utility involved the following information:

(1) A description of the customer-provided system.

(2) Schematic drawings of all inter-system wiring on the premises showing the spacing between the presently existing power lines, earth ground, and the inter-system wiring of the customer-provided equipment.

(3) A statement by the installer that the inter-system wiring complies with the rules and regulations of Section 5.3 and 5.4 of this order.

Revised Section 5.1c

c. Class 3 - Customer-Provided Station Equipment

Equipment used as telephone instruments, such as key and non-key telephones, on a single central office line. Such equipment shall have a customer-provided plug to be connected to the telecommunications network only through a utility-provided jack. The jack and plug shall be arranged in such a way as to permit disconnection of the customer-provided equipment without disrupting the utility's facilities. Coin telephones and customer-provided equipment working in conjunction with them are excluded from this class. Party-line telephones are excluded from this class.

Revised Section 5.1e

e. Class 5 - Protective Couplers for Customer-Provided Primary Station Equipment

Devices used for interconnecting multiple line telephone instruments or other terminal equipment, such as PBX or Key Telephone Systems which may be selectively connected to two or more central office lines. The coupler shall be connected to a utility-provided jack or connecting block. The disconnection facilities shall be arranged in such a way as to permit disconnection of the customer-provided equipment without disruption of the utility's facilities. Equipment working behind protective couplers that do not meet the requirements of Sections 5.6, 5.9 or 5.10 of this General Order must be certified to meet the requirements specified in these sections.

Revised Section 5.4a (2)

No direct current energy sources shall be applied to the telephone lines except in the case of customer-provided equipment using ground start signaling.

Revised Section 5.11a (3)

a. On-hook Impedance

(3) During the on-hook condition, the application of ringing signals shall not cause the customer-provided equipment to draw more than 15 milliamperes of current prior to line seizure.

Revised Section 5.11a (4)

This subsection is deleted.