

## HANDLING TROUBLE REPORTS WHEN ACOUSTICALLY OR INDUCTIVELY COUPLED DEVICES ARE USED FOR DATA TRANSMISSION

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### 1. GENERAL

**1.01** This section describes the maintenance procedures used to locate a trouble condition involving customer provided equipment (CPE) that is acoustically or inductively coupled to the switched telecommunications network. Although the acoustically and/or inductively coupled station is considered a voice arrangement, it is normally used to transmit to/from a DATAPHONE<sub>o</sub>Service or Data Access Arrangement at the remote end. Individual responsibility of both customer and the telephone company (TELCO) is defined.

**1.02** Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

**1.03** Since most acoustically or inductively coupled CPE is portable and may be coupled to various local loops, transmission characteristics of the local loop and telephone set will vary. Local telephone loops are designed only for voice communications and are not conditioned for Data Transmission as are some DATAPHONE Loops. No guarantee of satisfactory service can be offered when acoustically or inductively coupled CPE is used on nonconditioned local loops.

**1.04** Acoustic coupling is considered to be the transfer of energy acoustically between external CPE and the transmitter of a telephone handset, and/or between the receiver of a telephone handset and external CPE receiving equipment. A

signal acoustically coupled to the direct distance dialing (DDD) network is influenced by the acoustic interface between the acoustic device and the telephone set. In addition, the electrical and acoustic properties of a telephone set and the characteristics of the transmission facilities affect acoustic coupling. The T-type carbon transmitter (which is used in most 500-type, PRINCESS<sub>o</sub>, and TRIMLINE<sub>o</sub>Telephone Sets) is sensitive to certain factors such as handset position, vibration, and packing of the carbon granules in the transmitter.

**1.05** Since a telephone set contains components with magnetic fields associated with them, inductive coupling of data or voice signals is possible. One means of inductively transmitting by magnetic coupling is through a U-type receiver found in most 500-type telephone sets. TRIMLINE and some 500-type sets equipped with LA- or LB-type receivers produce weak magnetic fields, making inductive coupling impractical.

**1.06** The manufacturer or the customer must assure TELCO that the acoustically or inductively coupled device inputs a signal power level to the local loop in compliance with local tariffs. When required, TELCO can assure tariff compliance with an F-58754 Portable Test Set.

**1.07** When customer provided equipment is acoustically or inductively coupled, TELCO maintenance responsibilities consist of providing voice service up to the acoustic or inductive interface.

**1.08** The TELCO is under no obligation to condition local loops for data transmission unless specific compensation (via special assemblies or local tariffs) is received by the company for the additional effort and/or equipment required to condition a specified local loop. However, it is important that existing tariffs be consulted for possible exceptions, as there may be circumstances where compensation is not

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allowed. In many instances, conditioning will not be required for proper operation of acoustic or inductive CPE. In the event that conditioning becomes necessary, suitable compensation should be expected by the TELCO for effort expended beyond that required to ascertain that the local loop and telephone set in question perform for voice communication.

### **2. ANALYSIS AND TESTING PROCEDURES**

**2.01** Procedures for clearing trouble are initiated upon receipt of a trouble report by the Repair Service Bureau. Normal telephone trouble handling and testing procedures should be followed. Telephone sets that perform satisfactorily for voice communications may not always permit satisfactory coupling of acoustic or inductive CPE.

**2.02** When testing trouble reports involving transmission problems, the customer should be asked if present voice communication is being transmitted by the telephone set in question. If not, a call back should be made to the telephone set that the customer is having trouble with. If the tests performed by the testperson indicates that voice performance is satisfactory, the customer should be advised. Also, the customer should be advised to check the CPE with his vendor, or if the customer insists on a premise visit, notification must be given that a maintenance of service charge will apply if the repairperson verifies that the voice performance is satisfactory.

**2.03** The dispatched repairperson should perform the normal tests with and without assistance from the test desk. If satisfactory voice communication is obtained, the customer must be informed and no components (transmitter or receiver) of the telephone set are to be changed. The maintenance of service charge applies.

**2.04** When the transmission test performed by a testperson with or without the aid of a repairperson indicates that the station equipment is defective, the telephone set or defective component parts must be replaced and satisfactory voice performance verified. A maintenance of service charge does not apply.

**2.05** While investigating a trouble report that the customer is unable to inductively couple the CPE to the telephone set, and the repairperson finds an L-type receiver, the customer should be

informed that CPE is not compatible with all types of Bell System equipment. As long as the voice performance of the telephone set is satisfactory, the receiver unit should not be changed to the U-type to improve the performance of the CPE.

**2.06** In cases where all tests indicate the local voice service is within requirements and the customer is still not satisfied, a supervisor in the Repair Service Bureau should be notified of the results. The supervisor should then notify DATEC, or equivalent force, for action. The customer report should be "referred out" under the normal procedure.

**2.07** The DATEC or equivalent person will contact the customer and discuss the communication system for indication of possible problems at the far end or other points of the system. If the problem is identified as due to conditions not affecting voice communications, the customer will be so advised. The Repair Service Bureau will be notified to close out the report and advised of the action taken, including information as to the maintenance of service charge.

### **3. SUSPECTED TARIFF VIOLATIONS**

**3.01** Where carrier systems are involved in a service, a tariff violation may be brought to our attention. Under the Power Criteria Surveillance process, CPE installations which are suspected of exceeding tariff limitation can be monitored to confirm the violation. Bridged central office measurements of signal power levels can be performed at the serving central office.

**3.02** Signal power levels exceeding normal input to the central office should be referred to a DATEC or equivalent person to investigate the customer's equipment. In cases where an excessively strong signal is being transmitted due to CPE, the customer must be informed that they are in violation of the tariff and service will be suspended unless the violation is corrected. A maintenance of service charge is applicable when a tariff violation is determined and the Business Office must be notified. During the ten days that the tariff allows for the customer to correct the violation, a central office measurement of the transmitted signal power level should be made again. If corrective action is not taken by the customer during the allotted period, service termination procedures should be started by again notifying the Business Office.

**3.03** In some instances, the customer has replaced a standard transmitter unit with a nonstandard unit to improve data transmission. These nonstandard units may have a higher signal power level than permissible, thus creating a tariff violation. A visual inspection of the telephone set must be

made to determine if a nonstandard component has been added. If a component has been substituted, illegal parts must be removed and the telephone set returned to normal. A report must be forwarded to the Business Office since a maintenance of service charge will apply.