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ORIGINAL

Decision No. 91492 APR 2 1980

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Investigation on the Commission's own motion into the rates, rules, charges, operations, practices, service and facilities associated with mobile radiotelephone service provided by The Pacific Telephone and Telegraph Company and General Telephone Company of California.	OII No. 20 (Filed July 25, 1978)

Stanley J. Moore, Attorney at Law, for The Pacific Telephone and Telegraph Company and Hart, Snyder and Johnson, by Dale W. Johnson, Attorney at Law, for General Telephone Company of California, respondents.
Warren A. Palmer and Michael F. Willoughby, by Warren A. Palmer, Attorney at Law, for Industrial Communications Systems, Inc., Cal Autofone, Inc., and Radio Electronic Products Corp.; William W. Zondler and Dinkelspiel, Pelavin, Steefel & Levitt, by David M. Wilson, Attorney at Law, for Allied Telephone Companies Association; Ronald A. Rosberg and Brownell Merrell, Jr., Attorney at Law, for Communico; Geoffrey S. Goodfellow, James L. Huckaby, and Bill Roselle, for themselves; Robert Steinberger, for Phone Consultants International; John Mumaw, for City of Los Angeles, Department of General Services; Thomas J. McHugh, for Motorola C&E Inc.; and David Bergen, for The Communicators; interested parties.
William C. Bricca, Attorney at Law, Emily T. Marks, and Dean J. Evans, for the Commission staff.

O P I N I O N

INTRODUCTION

Pacific Ordered to Implement IMTS

Decision No. 88232 dated December 3, 1977 in Application No. 55492 authorized a general rate increase for The Pacific Telephone and Telegraph Company (Pacific). The decision included authorization for Pacific to increase and restructure mobile radiotelephone rates. It also ordered Pacific to implement an automated system of control known as Improved Mobile Telephone Service (IMTS). Ordering Paragraph 19 of Decision No. 88232, as amended by Decision No. 90658[1/], reads:

> "19. Prior to June 13, 1980, Pacific shall replace its existing manually operated mobile systems with IMTS. Service to existing mobile stations not equipped for IMTS shall be terminated thirty-six months after the effective date of this order. Within sixty days of such effective date, Pacific shall notify its mobile service customers of such conversion."

Decision No. 88232 noted that Pacific's annual revenues from mobile telephone service were $1.5 million, whereas the annual costs of providing the service were estimated to be $2.8 million. While the decision indicated that IMTS would provide improved service and found that Pacific should be ordered to convert to IMTS, the emphasis in the decision was on the fact that the economics

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1/ Decision No. 90658 dated August 14, 1979 granted Pacific's request to delay the completion date of IMTS from December 13, 1979, as specified in Decision No. 88232, to June 13, 1980. Pacific's stated reason for the delay was that the supplier of electronic mobile exchange (EMX) equipment would be unable to meet the delivery schedule called for in its contract with Pacific.

of IMTS dictated conversion. The opinion held, in effect, that even with the higher rates authorized in the order, the cost savings of IMTS operation would be necessary to make Pacific's mobile telephone service compensatory.

Summary

This decision concludes that no action should be taken to prevent the implementation of IMTS by Pacific and terminates the investigation under Order Instituting Investigation No. 20 (OII 20). It reaffirms Ordering Paragraph 19 of Decision No. 88232, as quoted above.

Improved Mobile Telephone Service

IMTS is designed to upgrade mobile radiotelephone service from manual to automatic operation. Pacific plans to cover its mobile service areas by means of EMXs in Sacramento and Anaheim, each of which have central offices compatibly equipped with an electronic switching system (ESS). IMTS provides automatic channel selection, direct customer dialing, and automatic billing. It also can provide such optional features as call forwarding, abbreviated dialing, and automatic roamer service. (This last feature permits a subscriber to retain continuity of service outside his home area.) In addition to reducing the necessity for operator handling of calls, IMTS is designed to provide service improvements through the ability to set up calls more quickly than the manual system, thus easing the pressure on available radio channels.

Investigation of IMTS Instituted

After Decision No. 88232 was issued, the Commission received comments from users of mobile service and from purveyors and servicers of radiotelephone equipment who raised questions regarding the IMTS which Pacific was ordered to provide. Upon consideration of the issues raised in these comments, the

Commission, on July 25, 1978, issued its OII 20 "for the specific purpose of providing a forum for those who use Pacific's radiotelephone utility service in California and for those who supply radiotelephone equipment in California to present their views and supporting evidence." Pacific was named respondent and General Telephone Company of California (General) was named as a "nonreporting respondent herein because it is coterminous to Pacific and the two utilities together furnish most of the mobile radiotelephone service provided by the wireline telephone utilities in California."

The "Notice of Hearing" issued by the Commission's Executive Director on April 10, 1979, following a prehearing conference, stated, "The issues in this OII will be limited to the technical merits of Improved Mobile Telephone Service." Issues relating to mobile radiotelephone rates were thereby removed from the scope of the investigation.

Public Hearings

Public hearings in the investigation were held before Administrative Law Judge James F. Haley in San Francisco on May 7, 1979 and in Los Angeles on July 17, 18, and 19 and September 12, 13, and 14, 1979. The hearings were concluded on the last date, and the investigation was taken under submission subject to the receipt of certain late-filed exhibits and to the filing of concurrent briefs on November 26, 1979.

COMPARISON OF OPERATIONAL ASPECTS MANUAL V. IMTS

Channel Capacity

The evidence demonstrates that the limited number of available radio channels will be used more effectively under IMTS control than under manual control. In the manual mode of operation, valuable air time is wasted during the comparatively slow process of "setting up" and "taking down" a call. Involved in the manual process are the following complex steps:

1. Customer must locate a vacant channel and then key that channel for a minimum of three seconds to signal operator.
2. Operator receives the signal, enters into the channel, and logs the call on the air.
3. Customer passes his billing data and informs operator as to whom he is calling and the type of call he desires to make.
4. Operator initiates a traffic ticket, dials the called number, remains on line to determine if contact has been made and, if so, begins timing the call. (At this point, operator is free to process other traffic.)
5. When the party hangs up, operator receives a signal and discontinues timing the call. (However, operator may not log the call off the air if she is busy handling another call.)

In the IMTS mode of operation, the procedures of setting up and taking down a call are automatically accomplished by transmitting the necessary data in the form of a nearly instantaneous series of tone bursts. Pacific's witness, E. C. Fishel, estimated that, during the setting-up procedure, IMTS requires an average of from one to two minutes less air time. This substantial savings in air time will increase the number of calls and number of users which can be reasonably accommodated by available radio channels, thus reducing the severity of the congestion which, the record shows, exists in the more crowded service areas.

Channel Access

The testimony of the public witnesses shows that a highly undesirable aspect of the manual mode in a crowded service area is the all-too-frequent outbreak of verbal battles among subscribers for available channels. Situations are not unusual

where four or five units simultaneously attempt to occupy one channel. Jamming or channel blocking, particularly by higher-powered transmitters, frequently occurs with the net result that no useful communication is achieved during the ensuing electronic melees.

The evidence indicates that improved channel access will be achieved under IMTS operation. In the automatic mode of operation, exchanges of this sort among customers should be largely eliminated.

Billing Accuracy

The record shows that manual mobile radiotelephone service is plagued by a practice known as "bootlegging". In the parlance of the mobile user, a bootlegger is someone who knowingly uses the telephone number of another party without permission and with the intent of evading paying for the calls so placed. The testimony of the public witnesses brought out that bootlegging is one of the more frequently occurring problems. It appears that a substantial portion of the mobile users on Pacific's radio channels are bootleggers. Bootlegging results in two types of serious problems for the legitimate mobile user. One is that a large portion of the bills of many subscribers relate to such spurious calls. The other is that bootleggers occupy a substantial part of the available channel time because there are a multitude of them and because they tend to be long-winded since they enjoy their air time free of all charges.

While bootlegging will still be possible with IMTS, the evidence shows that the practice will be substantially diminished. Further, because of the inherent automation of the IMTS system, the possibility of human error will be greatly reduced. As a result, IMTS can be expected to improve the correctness of charges to mobile customers through automated billing and positive customer identification.

Privacy of Calls

In the manual mode, subscribers listen to the conversations of others in the process of hunting for an available channel. In congested service areas, subscribers find it necessary to monitor conversations to determine when they are drawing to a close. Because of the automatic features of IMTS, there will no longer be such a need to listen to the radiotelephone conversations of others. Although IMTS cannot prevent intentional eavesdropping, it will eliminate the routine monitoring that now necessarily occurs in the course of manually finding a vacant channel.

Toll Rates

With the present manual system, operator participation is required to complete each call. Accordingly, all toll calls are charged at the rates for operator-assisted calls. IMTS will permit the customer to dial directly his toll calls and thereby qualify for and receive the benefit of the lower direct-dial toll rates.

Operator Services

Some of the public witnesses expressed dissatisfaction with the quality of operator services provided to mobile radiotelephone subscribers. Pacific contends, however, that its operators do an excellent job. The record establishes one aspect of operator services beyond any question, i.e., that the manual mode of operation often places the operator in a pressure-cooker type of work situation where it is hardly possible to maintain customer satisfaction.

The control function of the IMTS system will replace the work of the operators, except for the normal types of operator-assisted calls, such as collect and person calls. Accordingly, customer-perceived deficiencies in operator performance can reasonably be expected to all but disappear upon conversion to IMTS.

To the extent that the issue of operator services bears upon this investigation, it supports conversion from the manual mode to IMTS.

SUBSCRIBERS' CONVERSION COSTS

A subscriber may obtain his mobile radiotelephone installation in either of two ways. He may opt to rent the equipment from Pacific, or he may purchase the equipment from an independent dealer. About two-thirds of the subscribers select the latter option. The cost of purchasing and installing a brand-new state-of-the-art IMTS-compatible unit is in the range of $3,000 to $4,000. The testimony of the various parties indicates that the cost of converting a subscriber-owned manual mobile unit to IMTS would be somewhere in the range of $500 to $1,300.

Pacific's Mr. Fishel testified that today, based upon a 1978 survey of mobile subscribers in San Diego, Los Angeles, Oakland, and San Francisco, approximately 85 percent of the customer-owned installations are IMTS compatible. According to Mr. Fishel, all of the one-third of the subscribers who rent their equipment from Pacific will be provided with IMTS-compatible units. In the composite, then, some 90 percent of the mobile subscribers will have IMTS-compatible sets and less than 10 percent will be faced with the necessity of incurring the cost of conversion.

It follows that if this Commission were to decide against the implementation of IMTS, the substantial majority of Pacific's subscribers who have already incurred IMTS costs would be put to an economic hardship because they would be unable to benefit from the IMTS-compatible features of their equipment.

TRANSMITTER POWER

The record indicates that Pacific has not consistently enforced its limits on the power output of subscribers' mobile transmitters.[2/] As an apparent result, a significant number of

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2/ No more than 30 watts in the 150 megahertz (MHz) band and no more than 25 watts in the 450 MHz band.

users have purchased sets having power outputs of up to the 60-watt maximum allowed by the Federal Communications Commission (FCC) for this class of radio-frequency emitter. The user who is so equipped obtains an operating advantage on the crowded channels, often at the inconvenience of the user who is complying with Pacific's power limitation.

In a letter to its mobile telephone service subscribers dated May 10, 1978 (Exhibit 5), Pacific stated that it would require verification that each subscriber's transmitter is adjusted to operate within the specified power limits. The subscribers were instructed to provide the verification not later than November 1, 1979[3/] or suffer termination of service.

The record leaves no doubt that the power limitations are necessary to minimize interference between neighboring service areas using the same channels. A high-power unit will increase communications reliability in its own service area to a limited extent, but in the course of so doing it may substantially increase interference in neighboring service areas.

Pacific points out that it has not only the right but, under FCC rules, the responsibility to exercise control of the power output of mobile transmitters using its mobile telephone systems. In this respect Pacific cites Section 21.514(a) of Part 47 of the rules of the FCC, which places a responsibility on Pacific to exercise effective operational control over all of the mobile units which use its systems. Effective operational control necessarily includes control by Pacific of the power output of the mobile transmitters using its systems.

3/ By stipulation in this proceeding Pacific agreed to postpone enforcement of the power limitation until June 30, 1980 and to so notify its customers. This stipulation was made in Pacific's response to a motion for an interim order filed on October 1, 1979 by Ronald Rosberg, in which he requested that the Commission require Pacific to effect such a postponement.

The testimony of public witnesses shows that high-powered mobile units have created unacceptable interference problems. Such testimony further shows that these problems would exist regardless of the mode of operation of the mobile systems, whether manual or IMTS. In either event, then, resolution of these service problems requires enforcement of the power limitations by Pacific.

POSITIONS OF THE PARTIES

Public Witnesses

The public witnesses who testified during this investigation clearly favor conversion to IMTS. Only two of the public witnesses, Mr. Ronald Rosberg and Mr. Robert Steinberger testified in opposition to IMTS. Both of these witnesses appeared for mobile radiotelephone equipment dealerships, Mr. Rosberg representing Communico and Mr. Steinberger representing Phone Consultants International. They assert, in substance, that mobile subscribers will be put to a needless expense and that they will not benefit from conversion to IMTS. They contend that, instead, conversion will produce chaos on the mobile frequencies because of high customer density. The evidence does not support this contention.

Four other public witnesses who appeared and testified for mobile radiotelephone equipment suppliers strongly supported Pacific's conversion to IMTS.

Allied Telephone Companies Association (Allied)

Allied appeared in these proceedings as a "representative of the great majority of California radiotelephone utilities (RTUs)." Approximately 50 RTUs have been certificated by this Commission to offer to the public mobile radiotelephone services. These services are interconnected with the landline telephone network and, in some respects, are offered in direct competition with the respondents in this proceeding.

Allied's position in this investigation is that Pacific should be permitted to convert to IMTS but that Pacific should be periodically required to report on the results of its new operations so that the Commission might take the steps necessary to ensure efficient channel utilization.

Allied contends that the data now available shows that Pacific's current mobile rates are neither sufficient to cover annual charges nor an adequate tool to discourage channel congestion. Allied points out that both of these were goals of Decision No. 88232. Allied urges that the Commission order Pacific, immediately and on a quarterly basis hereafter, to report the revenues received and the costs incurred by its mobile telephone operations. Allied further urges jurisdiction be retained so that the issues presented might be reopened on the motion of any interested party.

Allied's position is well taken; however, the points raised by Allied do not fall within the scope of this investigation which is restricted to the technical merits of IMTS. The issues raised by Allied concern mobile telephone rates, which issues the Commission has excluded from the scope of this investigation. Allied may reassert its position in an appropriate future proceeding involving Pacific's mobile telephone rates.

Commission Staff

The Commission staff takes the position that there is no basis, either within the scope of this investigation or in the record developed herein, which will support any further delays in the implementation of IMTS by Pacific. The staff points out that while problem areas may be encountered with IMTS, the general thrust of the record is that IMTS is a desirable system. The staff believes that any problems which may be encountered with IMTS can be resolved after implementation of the service.

FINDINGS AND CONCLUSIONS

Findings of Fact

1. The limited number of radio channels available for mobile telephone service will be utilized in a more efficient manner with IMTS control than is possible with the present manual control.

2. IMTS control will increase the call-handling capacity of existing radio channels over that possible with the present manual control.

3. IMTS will increase the number of users who can obtain a reasonable level of service on the existing radio channels over the number possible under the present manual method of operation.

4. IMTS will relieve the level of congestion which exists on the presently available radio channels.

5. The quality of mobile communications provided by Pacific under the IMTS mode of operation will improve over that provided under the present manual mode of operation.

6. IMTS will yield an increased call-handling capacity in Pacific's mobile telephone system.

7. IMTS will result in operating economies which will make Pacific's mobile telephone service more compensatory than under manual operation.

8. The cost of converting a subscriber-owned manual mobile unit to IMTS is in the range of $500 to $1,300.

9. The cost of a brand-new state-of-the-art IMTS-compatible unit is in the range of $3,000 to $4,000.

10. Approximately 85 percent of Pacific's mobile subscribers who own their own radios are equipped with IMTS-compatible units.

11. To not convert to IMTS would place the substantial majority of Pacific's mobile subscribers, who now have IMTS-compatible installations, at a financial disadvantage.

12. IMTS permits automated billing and positive customer identification. Greater billing accuracy will be achieved with IMTS than with manual operation.

13. Greater calling privacy can be expected under IMTS operation.

14. Lower toll rates will be available to mobile subscribers under IMTS operation.

15. The balance of the value and the cost considerations of subscribers favors conversion to IMTS.

16. Enforcement by Pacific of its power limitations will result in an overall improved level mobile telephone service under either manual or IMTS operation.

17. Conversion to IMTS operation can reasonably be expected to greatly diminish the incidence of customer-perceived operator deficiencies.

Conclusions of Law

1. No action should be taken to prevent the implementation of IMTS by Pacific.

2. Finding 78 and Ordering Paragraph 19 of Decision No. 88232, as amended by Decision No. 90658, should be reaffirmed.

3. This investigation should be discontinued.

O R D E R

IT IS ORDERED that:

1. Finding 78 and Ordering Paragraph 19 of Decision No. 88232, as amended by Decision No. 90658, are reaffirmed.

2. This investigation is discontinued.

The effective date of this order shall be thirty days after the date hereof.

Dated APR 2 1980, at San Francisco, California.

President

Commissioners

Commissioner Claire T. Dedrick, being necessarily absent, did not participate in the disposition of this proceeding.