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October 3, 1997

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Ex Parte Filing

William F. Caton, Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

In re Matter of the Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act of 1996, **CC Docket No. 96-128**

Dear Mr. Caton:

DOCKET FILE COPY ORIGINAL

Enclosed for filing in this docket are the original and one copy of a letter to John Muleta. I sent this letter to Mr. Muleta today on behalf of the RBOC/GTE/SNET Coalition. I would ask that you include the letter in the record of this proceeding in compliance with 47 C.F.R. § 1.1206(a)(2).

If you have any questions concerning this matter, please contact me at (202) 326-7902. Thank you for your consideration.

Yours sincerely,

Michael Kellogg

Michael K. Kellogg

Enclosure

cc: John Muleta
Greg Lipscomb
Glenn Reynolds
Robert Spangler

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October 3, 1997

By Hand

John B. Muleta, Esquire
Deputy Chief
Common Carrier Bureau
Federal Communications Commission
2025 M Street, N.W.
Washington, D.C. 20554

In re Matter of the Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act of 1996, **CC Docket No. 96-128**

Dear John:

On behalf of the RBOC/GTE/SNET Payphone Coalition, I write to respond to a question raised by you and your staff last week. You asked whether "smart payphones" could be moved over to "smart" or "coin" payphone lines. If this were done, it was suggested, calls made from smart payphones would be accompanied by "27" ANI ii digits, and therefore would be uniquely identified as payphone calls.

Unfortunately, this cannot be done using existing technology. Where a coin line is used, LEC and IXC operator services switches automatically attempt to control the attached payphone by sending currents of plus or minus 130 volts. While dumb payphones are designed to respond appropriately to these currents, experience indicates that the currents would damage the circuit boards in many smart payphones.

Even setting this issue aside, it is not feasible for smart payphones to use "coin lines" without sacrificing much of their "smart" functionality. When a coin line is used, the coin line will attempt to control the call -- rating it, playing appropriate announcements, requiring coin deposits -- regardless of the type of payphone used. There is no feasible mechanism for selectively disabling these features of the coin line when a smart set is being used; the LEC switch cannot even determine the type of payphone, or even that a payphone, is being used on a

particular line. The use of coin lines in connection with smart payphones consequently would deprive PSPs of their ability to rate calls in their payphones and would deny them the ability to use "store and forward" technology. Moreover, as explained in greater detail below, using coin lines with smart payphones would effectively require many PSPs to send all of their sent-paid (i.e. coin) toll traffic to a carrier *other than* the presubscribed carrier. These problems could not be resolved without redesigning smart payphones and extensive reprogramming of LEC and IXC switches.

Background on payphone lines and payphone stations. To explain fully the issues raised by the staff's question, it is appropriate to clarify the terminology that will be used in this letter and, in so doing, to give a brief background on the different types of payphone stations and payphone lines.

Payphone lines fall into two basic categories. The so-called "smart" line or "coin line" (hereinafter, "coin line") is generally used for "dumb" payphones. The coin line provides all of the intelligent functionality that the dumb payphone, because it is "dumb," cannot offer.[1] The coin line rates the call (i.e., it establishes the price of the call), it announces the charge to the end-user, it interrupts the call when additional coin deposits are required, and it terminates the call if change is not deposited. In addition, through the application of electrical current, it "controls" the dumb payphone, causing the payphone to accept and return coins as appropriate.

The "dumb" line (also referred to as a "COCOT" or "PAL" line) offers none of this intelligent functionality. It is, in essence, a normal line on which additional functionality (screening, blocking, etc.) is offered or included. Because the dumb line does not rate the call, announce rates, or control coin return and acceptance, PSPs using dumb lines must use payphones that are capable of performing those functions internally. These payphones are commonly called "smart" payphones.

Payphones cannot be neatly divided into "smart" and "dumb" sets, however. Instead, the prototypical "smart" and "dumb" set

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[1]In fact, it is the operator services switch (to which coin line calls are routed) that provides the intelligent functionality. The automatic routing to an operator services switch is what distinguishes coin lines from other payphone lines.

are extremes on a continuum. Many "smart" payphones not only can perform the call-rating, announcement, call termination, and coin control functions, but also can keep track of accounting information and control automated maintenance schedules. At the other end of the spectrum are so-called dumb payphones, which can do none of these things. And, in between, are so called "bright" sets or "intelligent" payphones. These payphones are designed for use with coin lines (and thus rely on the coin line to perform the call rating, announcement, and coin control functions), but also offer internal accounting or automated maintenance functions.

This letter now turns to the ways in which coin line functionality is incompatible with, and would interfere with, the use of smart payphones.

Coin control voltages/currents. To control dumb payphones, the coin line delivers currents of plus or minus 130 volts, as appropriate. While this voltage is necessary to operate dumb payphones, it will in some cases prove to be more than smart payphones -- especially older models -- are designed to handle. Those payphones, it must be kept in mind, contain delicate computer circuitry to perform complex rating and other functions. Indeed, one LEC reports that, in the mid-1980s, it inadvertently provisioned coin lines to a PSP using smart payphones, with disastrous results: The current generated by the switch "fried" the circuit boards on the smart payphones. Needless to say, this does not counsel in favor of intentionally doing the same thing again now as a matter of federal policy.[2]

The Coalition knows of no way coin lines could be adjusted to prevent them from delivering this current when smart payphones (or older smart payphones) are used, but to deliver it when a

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[2]Nonetheless, some newer smart payphones are designed so that they can be used on a coin line. In particular, some can operate *either* as smart payphones or as "bright" or "intelligent" sets that use the coin line. Nonetheless, because LECs cannot determine which type of set is being used by an independent PSP (much less the age of the set), LECs cannot predict whether damage will result to a particular payphone if its line is converted from a COCOT or PAL line into a coin line. In any event, as explained below, even moving a dual-mode smart payphone to a coin line would disable the payphone's internal rating capability and re-route a large portion of the interLATA traffic originating on that payphone to an alternate carrier.

dumb payphone is used. To the contrary, the LEC cannot tell what kind of CPE is placed at the end of a coin (or any type of) line, much less distinguish among smart and dumb payphones.

Response to coin control functions and requests. Even where smart payphones can withstand the current and voltages to which coin line usage would expose them, smart payphones also would have to contend with the coin control and signaling demands associated with coin lines.

Local calls. With respect to simple, flat-rated basic local calls, these issues likely could be resolved, as the actions of the coin line are, for such calls, relatively straightforward. Where a coin line is used, at the beginning of the call the switch does what is termed a "coin present test." In essence, the coin line inquires whether the appropriate coins have been deposited. Because the rate for local calls is set internally by the dumb payphone, the line does not require the payphone to indicate the number or type of coins that have been deposited. Instead, the dumb set itself determines if appropriate coins have been deposited. If they have, the payphone sends a signal (it opens the line and puts a ground on it) indicating that the coins are in place. The coin line then permits the call to be completed.

Assuming that a smart payphone could withstand the voltages delivered on coin lines, we believe that these limited coin line functions would not be incompatible with the use of smart sets. With a fair amount of work, it might prove possible to reprogram many smart sets to respond appropriately to the "coin present" test, thereby permitting local coin calls to be completed. But far greater -- indeed, insurmountable -- difficulties arise with respect to long distance calls.

Long distance calls. When a long-distance call is made from a payphone attached to a coin line, the coin line takes a greater degree of control over call handling. First, the call is routed to an operator services switch. (For an intraLATA toll call, this is often the LEC operator services switch; for an interLATA call, it is an operator services switch belonging to the payphone's presubscribed interexchange carrier or an alternate carrier, as described more fully on pages 7-9 below.) This automatic routing to an operator services switch -- which is performed based on the "27" ANI -- is a critical step. It is the operator services switch (whether located in the LEC network or the interexchange carrier's) that provides the "intelligence"

for, and actually controls, the dumb payphone through the coin line.

Once the call is connected to the operator services switch, the coin line delivers an "operator attached signal," which tells the dumb set to return any coins that have been deposited. Then the *coin line* provides a recorded announcement to the customer, telling him or her how much to deposit. As the customer deposits coins, the dumb payphone signals each coin deposit. The *coin line* determines when the appropriate sum has been deposited, and then completes the call. After the first time increment passes (usually three minutes), the *coin line* interrupts the call and plays a recorded message requesting the deposit of additional coins. If the coins are deposited, the *coin line* continues the call. If not, the *coin line* terminates the call.

Where dumb or COCOT lines are used, the call is handled very differently. PSPs using COCOT lines often rely on the "store and forward" functionality of their smart payphones for long distance calls. Where they do, the *payphone set* stores the dialed number and calculates an appropriate rate. The *payphone set* then announces the rate to the caller. Once the proper number of coins is deposited, the *payphone set* dials the call as a normal, 1+ call, using the payphone's presubscribed carrier. After the first time increment passes (usually three minutes), the *payphone set* interrupts the call and requests the deposit of additional coins. If the coins are deposited, the *payphone set* continues the call. If not, the *payphone set* terminates the call. At the end of the day, the PSP (other than RBOC PSPs[3]) keeps the deposited coins and pays the presubscribed carrier for a regular 1+ call.

Because of these differences in call handling, attaching a smart set to a coin line would create at least two incompatibility problems.

First, the smart set would lose its ability to rate calls independently. This occurs because any long distance call originating on a coin line and bearing the "27" ANI ii code is automatically routed to an operator services switch. The coin line then automatically signals for the return of deposited coins, and plays a recorded announcement telling the customer how much to deposit. As a result, if the smart payphone already has

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[3]RBOC PSPs that use smart payphones treat deposited coins as belonging to the interexchange carrier.

asked for a deposit of coins, the customer will hear two demands for coins. The only way to prevent this from occurring is to reprogram the smart payphone to somehow "mask" the coin line's rate announcement so that the customer does not hear it. We know of no smart payphone that currently has this capability.[4] Nor is there a cost-effective way of reprogramming operator services switches to prevent coin lines from delivering this announcement where smart payphones are used in connection with coin lines. Neither LECs nor IXCs have any way of determining what kind of CPE is placed at the end of the line, and thus cannot determine whether the call originates on a smart, bright, or dumb payphone. The only indication they receive is the "27" ANI ii code that signals the need for special operator services handling (i.e., control over a dumb set).

Moreover, even if the initial announcement could be masked or disabled, coin lines prevent calls from being completed unless the payphone indicates that appropriate coins have been deposited. "Tricking" the line into letting the call pass nonetheless, or getting the smart payphone to signal that appropriate coin deposits have been made, would be difficult to achieve, as coin lines do not indicate to the payphone how many coins should be deposited; they tell only the customer this information (through a recorded announcement). Accordingly, to provide an appropriate response, the smart payphone would have to be provided with voice recognition technology, and be programmed to signal the coin line that an appropriate combination of coins had been deposited. This technology does not currently exist. Nor is it feasible to reprogram coin lines (by reprogramming LEC and IXC switches) to preclude them from requiring coin deposit responses for calls originating on some, but not all, coin lines. As explained above, neither LECs nor IXCs have any way of distinguishing smart payphones from dumb payphones where both are attached to the same type of line.

The same problem would arise again when the first and subsequent time increments expire. Coin lines interrupt the call at the end of each time increment (every 3 minutes, for example) to deliver a message requesting additional coins. This announcement would have to be masked by the smart payphone, and an appropriate announcement from the smart payphone would have to

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[4]The smart payphone could be operated as a "bright" set (if it has this capability). If the payphone were so configured, it would rely on the coin line for rating and announcements in the same way that dumb payphones do.

be substituted. And, once again, the smart set would have to interpret the announcement, and indicate to the coin line that an appropriate number of coins had been deposited. To perform these complex functions, an entirely new type of smart payphone would have to be developed.

Second, even if these problems could be overcome, PSPs would lose the benefit of their store-and-forward technology. As explained above, PSPs with smart payphones often use the store-and-forward process to handle sent-paid long-distance calls. The payphone rates the call, collects the coins, and then sends the call through to the presubscribed carrier as a regular 1+ call. As a result, these PSPs often pay interexchange carriers relatively low per-minute rates for long distance calls, while collecting more from the customer. (The difference is used to cover the costs of the payphone and other expenses.) If a coin line is used, however, the call is automatically routed to the carrier's operator services switch. The charge for calls routed through the operator services switch, however, is the rate announced by the switch to the end user, a rate that almost always is higher than the 1+ rate the PSP otherwise would obtain. Thus, if coin lines were used for smart payphones, the PSP would lose its ability to save money through the use of store-and-forward technology. Instead, it would have to pay the higher rates associated with operator services calls.[5]

<u>Routing of sent-paid calls to presubscribed carriers</u>. Perhaps most important of all, moving smart phones onto coin lines would in effect require PSPs to route their sent-paid 1+ interLATA traffic *away* from their presubscribed carrier and trigger the re-routing of 10XXX 1+ traffic as well.

This is true because most interexchange carriers do not have operator services switches that are capable of controlling a dumb payphone. (The above description was thus oversimplified in that respect.) In fact, AT&T is one of the few large carriers that has switches capable of controlling dumb payphones. MCI, for

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[5]It is no answer to require IXCs to "lower" their rates where a smart set is used. Because the IXC cannot tell whether or not a dumb set or a smart set is being used, there is no way for it to adjust the bill. Nor is it clear why such a solution would be fair to IXCs. Because their operator services switches would be kept occupied by such calls, and would waste memory and other resources providing rating information, the IXCs would incur additional costs for which they would expect compensation.

example, does not itself have this capability. As a result, AT&T handles about 80 percent of sent-paid interLATA calls from RBOC dumb payphones, and MCI itself handles no such traffic.

Consequently, 1+ and 10XXX 1+ traffic from dumb payphones cannot be routed to the vast majority of carriers that, like MCI, do not have operator services switches capable of controlling dumb payphones.[6] So that MCI may nonetheless be the presubscribed carrier for other call types (including 0+ calls), an alternative carrier system has been developed. In particular, MCI and other carriers that receive PSP traffic, but that do not have operator services switches capable of controlling dumb payphones, must designate *another* carrier to handle any dumb payphone traffic for them. Thus, for example, MCI might designate AT&T to handle any 1+ dumb payphone traffic that otherwise would be sent to MCI.

To effectuate these designations, LEC switches (and MCI's switches as well, presumably) rely on ANI ii digits. In particular, they rely on the "27" code to indicate that special operator service functions are required. Consequently, when LEC switches encounter a "27" code, they will not send the call to a carrier like MCI that cannot provide dumb payphone control. Instead, the call is re-routed to MCI's alternative carrier, which might be, for example, AT&T.[7]

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[6]If such traffic is inadvertently passed to an interexchange carrier that, like MCI, lacks this capability, the call goes through without requiring the deposit of coins. This, quite obviously, leads to disputes between the interexchange carrier and the PSP regarding liability for the call.

[7]To give a concrete example, a dumb payphone using a "smart line" might be presubscribed to MCI. If someone attempts to dial a long-distance call directly on that phone, however, MCI cannot handle the call: Because the payphone is "dumb," it cannot rate the call and demand the proper number of coins, and because MCI's switches cannot control the dumb payphone, they cannot do so either. The LEC switch, however, recognizes that the "27" ANI is uniquely associated with lines for which coin control is required. The switch therefore does not route the call to MCI, and routes it to AT&T instead. AT&T's operator services switch in turn rates the call and ensures that it is not completed unless an appropriate amount is deposited at the paystation.

This same process -- which protects MCI and other carriers against fraud by preventing calls that require coin control from being sent to their networks -- also makes it infeasible to use the "27" code for calls that, like those originating on "smart payphones, do *not* require coin control. Simply put, the "27" code automatically triggers the rerouting of calls to an alternate carrier capable of controlling a dumb payphone. Consequently, if all PSPs were to use coin lines (and all payphone traffic were marked with the "27" code as a result), all payphone 1+ toll traffic (include 10XXX 1+ toll traffic) would be routed *away* from the network of the chosen carrier in favor of alternate carriers capable of controlling dumb payphones, even where there is, in fact, no dumb payphone to control. The result would be that no 1+ toll calls, no sent-paid, store-and-forward traffic, and no 10XXX 1+ traffic could be sent to any of the numerous carriers that lack operator services switches capable of controlling dumb payphones, even when the calls in fact originate on smart payphones.[8]

For these reasons, we do not believe that attaching smart payphones to coin lines is a viable solution. First, the current delivered by a coin line to control the dumb station, if applied to many smart-sets, could damage their circuit boards. Second, even if that problem were resolved, it is not possible under current technology to reprogram smart payphones to handle 1+ toll calls using coin lines. Indeed, because the "27" ANI ii code associated with coin lines identifies such calls as requiring special operator services handling, attaching smart payphones to coin lines so as to generate the "27" code also would subject all calls from those payphones to special operator services handling. This handling includes not only coin-line delivered recorded messages asking for coin deposits, and coin-line control over call completion, duration, and termination, but also the rerouting of sent-paid toll traffic away from carriers that (like MCI) are incapable of controlling dumb payphones in favor of alternate carriers that (like AT&T) do have this capability -- even where, because a smart payphone is being used, such a capability is neither required nor appropriate.

Overcoming these problems would require fundamental changes in the way in which smart payphones function, coin lines are offered, and LEC and IXC operator services switches operate. The development work alone would take years to accomplish -- to say

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[8]There is no way to make the payphone line operate as a coin line for some call types and as a COCOT line for others.

nothing of implementation -- and the expense would likely prove astronomical. As a result, attaching smart payphones to coin lines does not appear to a viable option at this point in time, or at any point in time in the near future.

If you have any further questions concerning this matter, please contact me at your convenience. We would be happy to meet with you and your staff to discuss this matter further, or to make available to you Bill Keenan of Bellcore, who assisted us in investigating this issue.

Sincerely,

Jeffrey A. Lamken