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Ameritech Network Interface InterLATA Coin Equal Access

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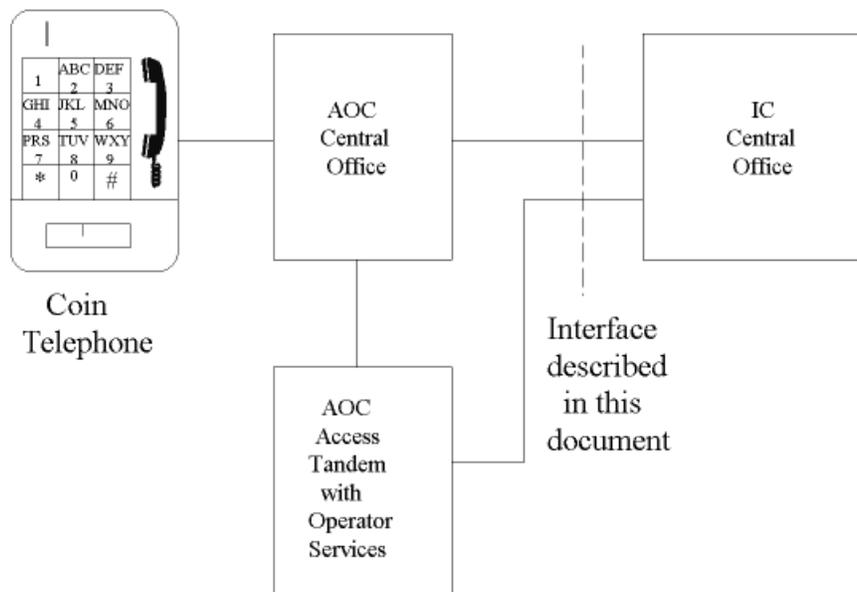
1. GENERAL

This document describes the Network Interface (NI) specifications for the Ameritech InterLATA Coin Equal Access service.

1.1. InterLATA Coin Equal Access Service

InterLATA Coin Equal Access Service is offered as a means to provide interexchange Carriers (ICs) with equal access to the InterLATA sent paid coin traffic from Ameritech company coin telephones. This service will allow ICs to connect to the Ameritech operating companies (AOCs) local or tandem central offices for coin traffic. Specifications are provided for a Coin Equal Access Interface as shown in Figure 1.

Figure 1. InterLATA Coin Equal Access



2. INTERLATA COIN EQUAL ACCESS DESCRIPTION

InterLATA Coin Equal Access service is provided to allow ICs to handle and route interLATA sent paid coin calls from AOC public telephones. This service arrangement allows interLATA sent paid coin calls to be routed from Ameritech end offices. This service is provided via the trunk side network access and equipped with trunk answer and disconnect supervisory signaling. Multifrequency (MF) address signaling with wink start operation is provided in this configuration.

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The Coin Equal Access service has the following features:

- Local or Tandem access
- Modified Operator Services Signaling - Expanded Inband Signaling
- Coin Deposit Tones
- Customer Flashes
- Operator Hold

2.1. End User Perspective

The end user for this service is the caller using the AOC public telephone. The interLATA coin 1+ service will be transparent to such end users, in that all ICs will handle interLATA coin calls in the same manner. This does not include differences in IC specific coin call handling, such as coin deposit prompts, but does include network functionality.

2.2. Dialing Plans

This service will affect calls dialed in the following formats:

- 1 + 7/10 digits (domestic all with line PIC)
- 011 + 7-12 digits (international call with line PIC)
- 10XXX + 1 + 7/10 digits (domestic call with selected IC)
- 10XXX + 011 + 7 - 12 digits (international call with selected IC)

Dialed codes, such as: 800, 911 etc., made from Ameritech coin phones are not handled as sent paid calls and not affected by this service arrangement.

2.3. Interconnection Architecture - Local and Tandem Access

An IC may elect to receive their interLATA sent paid coin traffic via trunks directly from the AOC Equal Access end office (EAEO) or from the AOC Access Tandem with operator services. The interface specifications for the direct EAEO or tandem coin traffic access will be the same. Transmissions quality on the direct or tandem trunks is functionally equivalent.

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2.4. *Modified Operator Services Signaling - Expanded Inband Signaling*

Expanded inband signaling provides coin collect, coin return, ringback, operator attached and operator released signals and is required for coin signals between the local AOC network and IC switch. The expanded inband signals present the signaling necessary for the current disposition of Ameritech originated interLATA coin traffic. These signals control the collect and return disposition of coins and other functions, such as enabling the coin station DTMF pad for end to end signaling.

2.5. *Coin Deposit Tones*

Coin deposit tones are tones sent from the local network to the IC and indicate the deposit of coins in the public telephone.

2.6. *Customer Flashes*

If the caller flashes the switchhook on a coin call, an operator recall signal is sent to the IC switch.

2.7. *Operator System Hold*

This is the off-hook (acknowledge wink) from the IC that signals the local network that coin control will be controlled from an outside source (not the local serving end office).

3. INTERLATA COIN EQUAL ACCESS PROTOCOL

3.1. *General*

This section deals with the electrical characteristics of the coin equal access service at the network interface. The interface is a dedicated, 2-wire, operator type trunk, using Modified Operator Services Signaling (MOSS), that is designated to handle coin traffic.

This section describes the various signals sent from the local AOC network to the IC switch and from the IC to the local network. These signals pertain to coin operation, MF digit stream, network signals, answer and disconnect signals in the network. Refer to Bellcore documents LSSGR Section 5 TR-NWT-000505, LSSGR Section 6 TR-TSY-000506, LSSGR Section 7 TR-TSY-000507, LSSGR TR-TSY-000530 FSD 20-20-0000, LSSGR TR-NWT-000690 FSD 20-24-0000, LSSGR TR-TSY-000528, TR-TSY-001052, OSSGR Section 5 TR-NWT-001142, OSSGR Section 6 TR-NWT-001144, OSSGR Section 10 TR-NWT-001149 and OSSGR Section 24 TR-NWT-001162.

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3.2. *Modified Operator Services Signaling - Expanded Inband Signaling*

This section describes the operator systems coin signaling functionality for the following functions: coin collect, coin return, ringback, operator attached, operator released and operator released/coin collect. These signals consist of a pair of in-band tones transmitted simultaneously from the IC operator system to the local network. The Expanded Inband Signaling feature provides the local network with the ability to recognize a long wink (flash) from an operator system or IC in order to facilitate the detection of in-band winks and screen out on-hook hits (which may falsely attach a receiver). Refer to Bellcore documents LSSGR Section 5 TR-NWT-000505, LSSGR Section 6 TR-TSY-000506, LSSGR TR-TSY-000528 FSD-10-08-0000, PTGR TR-TSY-000456 and OSSGR Section 6 TR-NWT-001144.

Coin Collect and Coin Return - Coin collect and coin return signals are generated at the operator system as in-band tones (700 & 1100 and 1100 & 1700 Hz respectively) to signal the local network for proper disposition of the coins.

Ringback - The ringback signal (700 & 1700 Hz) is sent from the IC operator system to indicate to the local network that ringing current should be applied to the coin line.

Operator Attached - The operator attached signal (1300 & 1500 Hz) indicates that the IC operator system is monitoring for coins and this condition will disable the coin station dial pad.

Operator Released - The coin released signal (900 & 1500 Hz) indicates that the monitoring of coins has been completed by the IC operator system and this condition is used to enable the dial pad for further use.

Operator Released/Coin Collect - The operator released/coin collect signal (1500 & 1700 Hz) indicates that the monitoring of coin deposits has been completed and that a coin collect action should be performed at the local network.

3.3. *Coin Deposit Tones*

Coin deposit signals comprise a number of bursts of dual frequency (1700 & 2200 Hz) tones: one burst for a nickel, two for a dime and five for a quarter. The coin station should generate coin signals in the order the coins are actually deposited. Refer to Bellcore document LSSGR Section 6.2 TR-TSY-000506 and PTGR TR-TSY-000456 Section 5.

3.4. *Customer Flashes*

If the customer flashes the switchhook on a operator system handled coin call, an "operator recall" signal is sent to the IC operator system for connection to an operator. Refer to Bellcore

document LSSGR Section 5.2 TR-NWT-000505, LSSGR Section 6.3 TR-TSY-000528 for the specifications.

3.5. Operator System Hold

This is the off-hook (acknowledge wink) from the IC that signals the local network that coin control will be controlled from an outside source (not the local switch). Refer to LSSGR Section 5.2 and Section 6.3.

3.6. Trunk Signaling - Modified Operator Signaling

This section pertains to the network trunk signals sent over the interface. Refer to OSSGR Section 5, Section 6 and Section 10, LSSGR Section 5 and 6, LSSGR TR-TSY-000528 FSD 10-08-0000, LSSGR TR-TSY-000530 FSD 20-20-0000 and LSSGR TR-NWT-000690 FSD 20-24-0000.

Modified Operator Signaling (MOS) is characterized by two stages of outpulsing. These two stages consist of an address field (called number) in the first stage and an identification field (calling number - ANI) in the second stage. In MOS signaling, the address field is sent first and the identification field is sent last. With MOS signaling the calling number information is sent with 7 digit. Refer to LSSGR Section 6.3 and 6.4, and OSSGR Section 6.7.2.4.

1. On receipt of the digits from the coin telephone, the end office or the operator tandem will seize a trunk to the IC.
2. The IC recognize the seizure by sending a wink-start signal.
3. With the receipt of the wink-start, the AOC network will outpulse the following address field:
 - KP + 7/10 + ST (domestic)
 - KP + 1 + CC + NN + ST (international)
4. When the IC receives the address field, the IC will return the ANI request signal (off-hook) to the AOC network.
5. On receipt of the ANI request signal from the IC, the AOC network will outpulse the identification field as follows:
 - KP + 11 + 0/7 digit ANI + ST (domestic and international)

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6. The AOC network will accept and process the expanded inband signals (see Section 3.2) sent from the IC and will pass the customer switch-hook flashes, coin deposit tones, DTMF tones and disconnect treatment to the IC.

Seizures - This pertains to the trunk seizure (on-hook to off-hook supervision) at the local network. Refer to LSSGR Sections 5.2 and 6.3.

Wink - The wink signal from the IC should be received after the seizure to initiate outpulsing. Refer to LSSGR Section 5, 6.3 and 6.4.

Answer and disconnect - This is the called party answer and disconnect and is characterized by a trunk tip and ring battery reversal. Refer to LSSGR Section 6.3.

3.7. *Dual-Tone Multifrequency Signals*

DTMF address signaling is used with virtually all modern public telephones. This document pertains to DTMF tones 1 through 0, * and #. Refer to OSSGR Section 24 TR-NWT-001162, ANSI T1.401 - 1988 and LSSGR Section 6.4 for the signaling specifications.

3.8. *Call Progress Signals*

A variety of audible tone signals are used to inform the customer or operator system of the progress of disposition of a call. These signals may pass over the trunks between switching systems. Refer to LSSGR Section 6.4.

4. REFERENCES

ANSI Documents:

- Interface Between Carriers and Customer Installation - Analog Voicegrade Switched Access Lines Using Loop-Start and Ground Start Signaling. ANSI T1.401 - 1988. American National Standards Institute (ANSI).

Telcordia (formerly Bellcore) Technical Documents:

- LATA Switching System Generic Requirements, Section 5, Call Processing, TR-TSY-000505
- LATA Switching System Generic Requirements, Section 6, TR-NWT-000506
- LATA Switching System Generic Requirements, Section 7, Transmission, TR-TSY-000507

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- LATA Switching System Generic Requirements, Coin and Coin Charge-a-call, TR-TSY-000528
- LATA Switching System Generic Requirements, TR-TSY-000530
- LATA Switching System Generic Requirements, TR-NWT-000690
- LATA Switching System Generic Requirements, TR-TSY-001052
- Operator Services System Generic Requirements, Section 5, TR-NWT-001142
- Operator Services System Generic Requirements, Section 6, TR-NWT-001144
- Operator Services System Generic Requirements, Section 10, TR-NWT-001149
- Operator Services System Generic Requirements, Section 24, TR-NWT-001162
- Public Terminals Generic Requirements, TR-TSY-000456

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