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# Ameritech Answer Supervision with Line Side Interface Specification

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**TECHNICAL REFERENCE NOTICE**

This Technical Reference is published by Ameritech to provide a technical description of the Interface between Customer Premises Equipment and the Ameritech central offices to support the Open Network Architecture (ONA) plan Basic Serving Element (BSE) Answer Supervision with Line Side Interface.

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## 1. GENERAL DESCRIPTION

This document describes the network interface for the Ameritech Answer Supervision with Line Side Interface. This feature will provide a electrical indication of the called party answer to a line side connection via reversal of the voltage on the subscribing line.

This feature is being offered in response to requests from the Enhanced Service Provider (ESP) community via the Open Network Architecture (ONA) process.

This feature will only be provided in properly equipped Northern Telecom DMS 100 central offices.

## 2. PHYSICAL INTERFACE

The Answer Supervision with Line Side Interface can be applied to any analog loop start line except for multi-party and digital loop carrier lines.

Interconnection to the ESP's Customer Premise Equipment (CPE) is via standard outside plant cable, tip and ring connections. Refer to PUB 61100 for details for these types of connections.

## 3. FEATURE OPERATION

### 3.1. *General Feature Operation*

On lines without the Answer Supervision with Line Side Interface feature the polarity of the line does not change.

When the Answer Supervision with Line Side Interface feature is applied to a line, however the polarity will reverse when the calling party's (subscriber's) central office receives an indication of answer supervision from the called party's central office. In addition, an audible click will be heard on the line. The timing of the feature activation will vary by network architecture from nearly instantaneous on intraoffice calls up to a few seconds for InterLata calls.

This indication of answer supervision is provided on all calls where answer supervision is returned to the originating caller's central office. On calls where no answer supervision is returned to the originating central office (e.g. calls to vacant codes) no indication of answer supervision is provided by this feature. Currently, the service is activated only once during a call origination, no action by the called party can release the reversing of the polarity towards the subscribing customer.

### 3.2. *Loop Electrical Changes*

The description of the specific changes to polarity is shown on Diagram 1. They are as follows:

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On-hook Phase (Calling party telephone set is on-hook): -48 volts on the ring lead and ground on the tip lead.

**NOTE:** a specific on-hook voltage level is not guaranteed, the -48 volts is only shown for reference. In an off-hook state the -48 volts is a nominal value which can vary depending upon the length and gauge of the local loop cable pairs serving the subscriber's premises.

Dialing Phase (Calling party is off-hook dialing digits of called party telephone number): -48 volts on the ring lead and ground on the tip lead.

Called Party Answer Phase (Called party answers telephone and the answer supervision signal is sent back to the originating subscriber's central office): Ground on the ring lead and -48 volts on the tip lead. As previously mentioned, the time between actual answer and activation of this feature can be from nearly instantaneous on an intraoffice call to several seconds on an Inter-Lata call.

Talking Phase: (Calling and called parties are talking): Ground on the ring lead and -48 volts on the tip lead. In other words, the polarity reversal is maintained throughout the talk state.

Disconnect Phase: (Calling party disconnects): -48 volts on the ring lead and ground on the tip lead.

#### **4. FEATURE COMPATIBILITY / RESTRICTIONS**

The only line option that is compatible with this service is Call Forwarding Variable. The following features should be restricted from the subscribing line; three-way calling, conference calling, all Centrex attendant features, call hold and the related consultation hold features, circuit switched digital data, toll denial, toll diversion and all call transfer features.

#### **REFERENCES**

1. NORTHERN TELECOM GENERAL SPECIFICATIONS - GS618 ISSUE 01.02.
2. TELCORDIA ( formerly BELLCORE) TECHNICAL REFERENCES TR-TSY-00456 - Public Terminal Generic Terminals.
3. "Description of the Analog Voiceband Interface Between the Bell System Local Exchange Lines and Terminal Equipment", PUB 61100, Bell Communications Research, January 1983.

Documents can be ordered from the following issuing locations:

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Any questions regarding this document, please contact the APEX Help Desk at 847-248-4328.

**Diagram 1**  
Five Phases of Call Demonstrating Answer Supervision with  
Line Side Interface Voltage Characteristics for Each Phase.

Tip	Ground	Ground	-48 Volts	Ground
Ring	- 48 Volts	- 48 Volts	Ground	- 48V
<u>ON-HOOK PHASE</u>	<u>DIALING PHASE</u>	<u>CALLED PARTY ANSWER PHASE</u>	<u>TALKING PHASE</u>	<u>DISCONNECT PHASE</u>
Calling party telephone set in on-hook.  Note: voltage may differ from -48V as stated.	Calling party is off-hook dialing digits of called party telephone number.	Called party answers telephone. Battery and ground is reversed on tip and ring towards calling party. Battery -48 Volts is put on tip side, ground is applied to ring side of line.	Calling and called party are talking. Battery and ground are reversed during this entire phase of call.	Calling party disconnects from call. Line voltages return to on-hook phase of call, ready for new call origination.