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Description of the Network Interface to RingMaster® Service

Technical
Reference

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DESCRIPTION OF THE NETWORK INTERFACE TO RINGMASTER® SERVICE

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DESCRIPTION OF THE NETWORK INTERFACE TO RINGMASTER® SERVICE

1. INTRODUCTION

1.1 General

This document describes the physical and electrical aspects of RingMaster® Service as provided in South Central Bell and Southern Bell. It should be sufficient to allow manufacturers of Customer Premises Equipment (CPE) to design and build CPE that will satisfactorily function with the service.

NOTE:References to RingMaster Service will appear throughout this document. RingMaster Service is a registered service mark of BellSouth Corporation.

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1.2 Revisions

This document has been revised to slightly modify the description of RingMaster ringing patterns as a result of changes to some switching systems, and to make it clear that Open Switching Intervals may occur in conjunction with RingMaster ringing signals.

Changes in technology or market conditions may at some future date necessitate changes in RingMaster Service. Should this occur, this technical reference will be reissued, or another reference will be issued, depending on the nature of the change. The reissue or new issue will be sufficiently in advance of actual implementation to allow manufacturers to accommodate the changes in their design before they impact the end user.

1.3 FCC Rules Considerations

Since this service is provided via the public switched network, connected Customer Premises Equipment (CPE) is subject to Part 68 of the FCC Rules and Regulations. All terminal equipment must be registered in compliance with Part 68.

The CPE is also regulated under Part 15 of the FCC Rules covering Radio Frequency Interference. Terminal equipment must comply with rules established for Class B computing equipment.

2. SERVICE DESCRIPTION

2.1 Overview

RingMaster Service provides for the delivery of up to three distinct ringing patterns based on the called number, on one access line. Up to three distinct Call Waiting tone patterns are also provided, if the access line is equipped with Call Waiting.

Since one number is available without RingMaster Service, RingMaster provides for the addition of one, or two additional numbers.

If one additional pattern is desired, the customer is provided one additional telephone number. If two additional patterns are desired, two additional numbers are provided. When each number is dialed, ringing is furnished accordingly.

This document will refer to the telephone number available before the addition of RingMaster Service as the primary number. Literature furnished to the customer upon ordering the service will identify the additional number(s).

2.2 Implementation

This service is implemented in the Operating Telephone Company's central office and makes use of a customer's existing CPE.

2.4 Limitations

RingMaster Service is available in only selected locations in the BellSouth Operating Companies' territory.

In some areas, facilities only permit the assignment of one additional telephone number and associated pattern.

There is a small amount of network equipment in place that could distort the distinctive ringing patterns associated with this service beyond the limits described below. The BellSouth Operating Companies will correct problems of this nature as they are made aware of them.

Since this service is implemented using one access line, attempts to connect to any of the numbers, after a call has been completed to one of the others will result in a 'busy tone'. Alternately, audible ringing will be heard if the called party subscribes to Call Waiting Service.

3. NETWORK INTERFACE

The Network Interface (NI) is the point of connection between the facilities of the service provider and the equipment provided by the customer. RingMaster Service is a feature added to a loop start exchange access line. The NI of the exchange access line is also the NI for this Service.

The specifications of the exchange access line interface are described in ANSI Standard T1.401−1988. 'Interface between Carriers and Customers − Analog Voicegrade Switched Access Lines using Loop−Start and Ground−Start Signaling'. Additional specifications peculiar to RingMaster Service are detailed in Section 5 below.

4. PHYSICAL SPECIFICATIONS

The Physical Interface to this service is a registered Universal Service Order Code (USOC) jack, as described in Part 68 of the FCC Rules and Regulations.

5. ELECTRICAL SPECIFICATIONS

5.1 General

Electrical Specifications at the NI are as described in the ANSI Standard referenced above, except as noted below.

Please note that the time values given in this document are nominal, actual values will be within $\pm$ 5 % of these values.

5.2 Ringing Frequency

Ringing on an exchange access line in South Central Bell and Southern Bell may be assumed to be in accordance with Section 5.4.2.1.1 of the above Standard. More specifically, the frequency of the ac ringing signal may be assumed to be between 17 and 23 Hz.

5.3 Ringing Patterns

Ringing patterns consist of alternating applications of ringing signal and silent interval. The voltages associated with each of these are described in the ANSI Standard mentioned above. Ringing patterns are 6 seconds in length.

Ringing may begin at any point in time. The initial ringing signal applied to the NI may not be the first ringing signal of the ringing pattern, ringing may begin at any point in the ringing pattern.

Open Switch Intervals (OSI's), as described in section 9.1 of the ANSI standard referenced above, can occur before or after the ringing signal. OSI's can have a duration of up to 350 milliseconds. Silent intervals of this duration or less may, therefore, not have any ring−trip battery present for the entire interval.

Some network facilities may shorten, or lengthen:

the ringing intervals,
the silent intervals,
or both,

by as much as 50 milliseconds.

This timing distortion is not reflected in the ringing patterns described below but must be taken into account when designing equipment to recognize distinctive ringing.

5.3.1 Primary Number

The ringing pattern delivered to the line when the primary number is dialed consists of two seconds of ringing followed by a four second silent interval.

5.3.2 First Additional Number

This ringing pattern will consist of:

700 to 1000 milliseconds of ringing, followed by;
a 350 to 500 millisecond silent interval, followed by;
700 to 1000 milliseconds of ringing, followed by;
a 3.5 to 4.25 second silent interval

or:

400 milliseconds of ringing, followed by;
a 200 millisecond silent interval, followed by;
400 milliseconds of ringing, followed by;
a 200 millisecond silent interval, followed by;
800 milliseconds of ringing, followed by;
a 4.0 second silent interval.

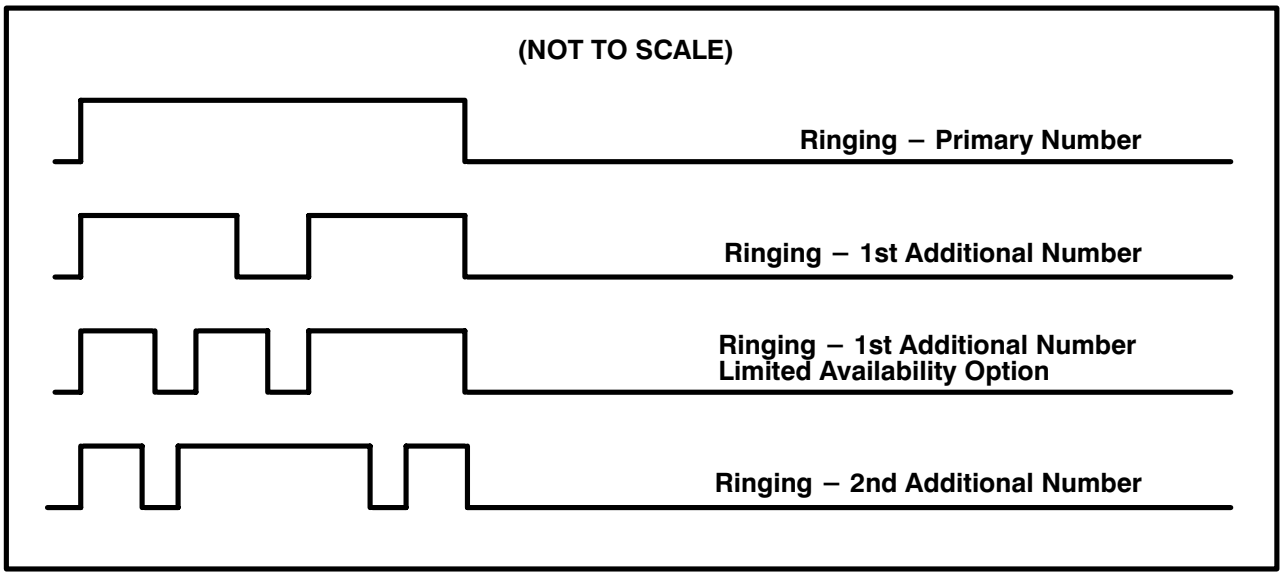
This second option is only available in a few locations in BellSouth and it is not planned for use in any new locations in the future. Where this option is used, a second additional number is not available.

5.3.3 Second Additional Number

This ringing pattern will consist of:

250 to 500 milliseconds of ringing, followed by;
a 170 to 500 millisecond silent interval, followed by;
890−1000 milliseconds of ringing, followed by;
a 170 to 500 millisecond silent interval, followed by;
250 to 500 milliseconds of ringing, followed by;
a 3.0 to 4.27 second silent interval

CHART 5.1 below, illustrates the Ringing timing patterns



5.4 Call Waiting Tone

Call Waiting is a feature that may also be ordered by the customer. When a line with the RingMaster feature is also equipped with Call Waiting, the Call Waiting Tone, like ringing, is coded.

Call Waiting Tone is defined in Appendix D, paragraph 1.8 of the above standard. This is a nominal 440 Hz tone, at −26 to −10 dBm. The tone is presented to the called party every 10 seconds while the calling party is off−hook and the called party is on another call.

5.4.1 Primary Number

Call Waiting Tone delivered when the primary number is dialed consists of 300 milliseconds of tone followed by a 9.7 second quiet interval.

5.4.2 First Additional Number

The Call Waiting Tone delivered when the first additional number is dialed consists of:

100 milliseconds of tone, followed by;
100 milliseconds of quiet interval, followed by;
100 milliseconds of tone, followed by;
9.7 seconds of quiet interval.

or:

100 milliseconds of tone, followed by;
100 milliseconds of quiet interval, followed by;
100 milliseconds of tone, followed by;
100 milliseconds of quiet interval, followed by;
100 milliseconds of tone, followed by;
9.5 seconds of quiet interval.

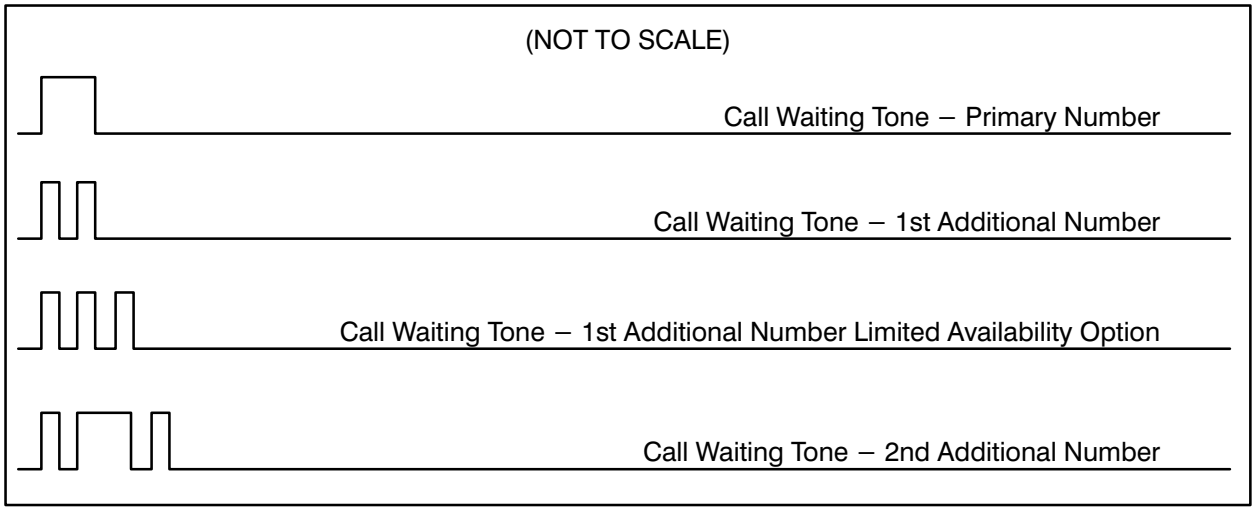
This second option is only available in a few locations in BellSouth, and it is not planned for use in any new locations in the future. Where this option is used, a second additional number is not available.

5.4.3 Second Additional Number

The Call Waiting Tone delivered when the second additional number is dialed consists of :

100 milliseconds of tone, followed by;
100 milliseconds of quiet interval, followed by;
200 to 300 milliseconds of tone, followed by;
100 milliseconds of quiet interval, followed by;
100 milliseconds of tone, followed by;
9.3 to 9.4 seconds of quiet interval.

CHART 5.2 below, illustrates the Call Waiting Tone timing patterns



6. BIBLIOGRAPHY

ANSI Standard T1.401–1988