

**QWEST Communications
International Inc.
Reference Publication**

**Voice Grade Special Service
Basic Voice
Transmission Parameters, Limits
And Interface Combinations**

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This publication has been prepared to provide InterLATA Carriers with a description of Voice Grade Basic (VGB); a service offered by QWEST.

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1. General

This document describes Basic Voice. Voice Grade Basic (VGB) is a service offered by QWEST to InterLATA Carriers (IC) and End Users (EUs). The description herein covers service features, technical specifications, and valid interfaces.

An IC desiring to serve a Local Access Transport Area (LATA), by interconnecting with Local Exchange Carrier (LEC) facilities, must establish one or more Points Of Termination (POTs) within the LATA for connection of its facilities with those of the LEC. The LEC will provide special access from an End-User Point Of Termination (EU-POT) to an IC Point Of Termination (IC-POT) within a LATA. A POT is the physical point where the access service terminates and the customer's facility begins.

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2. Purpose

The purpose of this document is to describe VGB service by defining the interface combinations and technical specifications and to provide a quantitative and qualitative description of the service and its interfaces so compatible operation can be achieved.

It is not the intent of this document to provide specific ordering information. Refer to applicable filed tariffs.

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3. Service Description

VGB Special Access service is a nonswitched service used for voice grade (300 to 3000Hz) applications without signaling or supervision. The facility may be metallic or carrier derived at the option of the Local Exchange Carrier (LEC). DC continuity is not inherent in this service. Two-wire circuits, end-to-end, will be limited to one central office while four-wire circuits may be ordered within or between central offices. Voice band signaling may be used for supervision by the IC but will not be supported by the LEC. The nominal bandwidth available with VGB is 300 to 3000Hz. Energy outside this band is permissive only and must comply with accepted limits shown in Technical Publications (see References, Chapter 8).

VGB is a nondesigned service. No special equipment is added to compensate for attenuation distortion, delay distortion, loss, noise or longitudinal balance. Circuit loss is not fixed and will vary based on the type and length of facilities connecting the two locations. It is assumed that the IC can evaluate the performance of a VGB circuit and can provide the needed equipment to compensate for facility effects. Typical circuit loss will be in the range of 0-16 dB. Higher circuit losses are possible but their occurrence would be rare. When carrier facilities are provided their loss contribution will be set to 0 dB measured at 1004Hz. Therefore, circuit losses will be the accumulation of losses associated with loaded or nonloaded metallic facilities.

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4. Interface Codes and Combinations

The electrical interface with the LEC for VGB is described by an interface code at each end of the service. Interface codes for VGB are made up of three components: (1) the number of wires, (2) protocol code, and (3) the nominal impedance code. For example, for the interface code 04NO2, the 04 represents the number of wires (2 pair), the "NO" protocol code means no signaling provided by the LEC, and the "2" means a nominal AC impedance of 600 ohms.

	A Loc	Z Loc
Intra Wire Center	02NO2 to 02NO2 -or- 04NO2 to 04NO2	
Inter Wire Center		04NO2 to 04NO2

Figure 4-1 Valid Code Combinations for VGB

Only the code combinations shown above will be provided. Note that 2-Wire to 4-Wire conversion is not available with this nondesigned service. In addition, the LEC will assume that the impedance provided to the network will always be 600 ohms.

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5. Technical Specifications

A Basic Voice ordered between two central offices will generally encounter carrier facilities in the LEC. The loss contribution of all carrier facilities will be set to OdB. This leaves only the loss of the local channels serving each POT. At no time will the transmit level exceed 0 dB into the cable facility.

The circuit loss and frequency response is a function of the facility length, gauge of the wire, and loading schemes. Substantial description of local service loops has been published by the Institute of Electrical and Electronics Engineers (IEEE). This IEEE document can be used effectively to predict expected circuit loss.

Because this is a nondesigned service, the Design Layout Record (DLR) will not be produced. Service turnup tests will be limited to “continuity” tests only. When carrier facilities are involved, continuity will be checked using a test tone. Typically 1004 Hz will be used. On metallic facilities, DC tests may be used to determine circuit continuity.

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6. Interface Illustrations

6.1 Interface Type 02NO2

DESCRIPTION: Connects customer to an access service suitable for voice transmission with no signaling provided by the LEC. End-user and/or IC may apply inband type signaling to the channel.

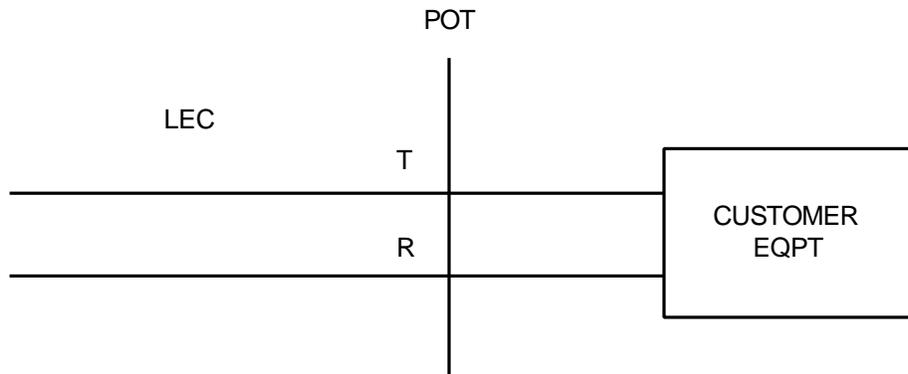
2-Wire (T,R)

IMPEDANCE: 600 ohms nominal

TRANSMISSION LEVELS (dB):

at POT	RCV (out of LEC) *	XMT (into LEC) 0
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* Determined by cable loss, see Chapter 5.



6.2 Interface Type 04NO2

DESCRIPTION: Connects customers to an access service suitable for voice transmission with no signaling provided by the LEC. End-user and/or IC may apply inband type signaling to the channel.

4-Wire (T,R,T1,R1)

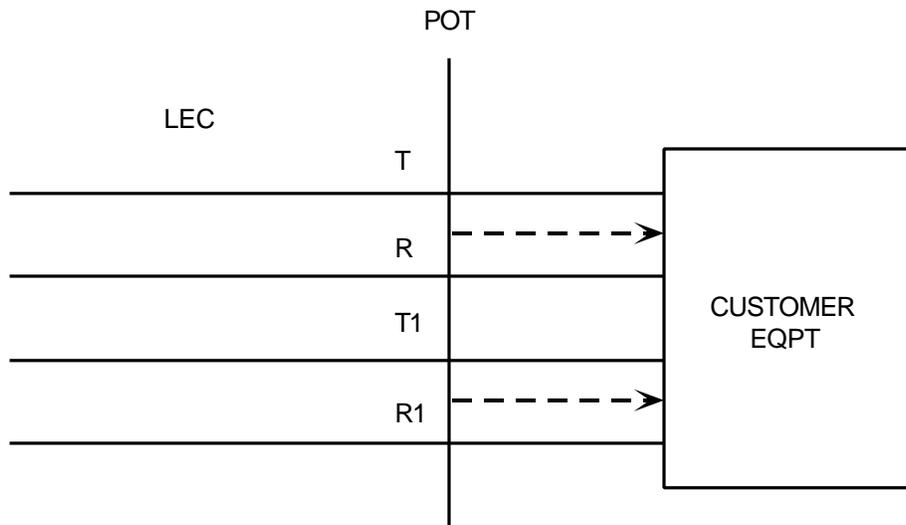
IMPEDANCE: 600 ohms nominal

TRANSMISSION LEVELS (dB):

	RCV (Out of LEC)	XMT (into LEC)
at POT	*	0
at POT %	*	-16 to +7

* Determined by cable loss, see Chapter 5.

% Where LEC Carrier is terminated at the POT



Arrows denote direction of voice transmission

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7. Definitions

7.1 Acronyms

DLR	Design Layout Record
EEE	Institute of Electrical and Electronics Engineers
EU's	End Users
EU-POT	End User Point Of Termination
IC	InterLATA Carriers
IC-POT	IC Point Of Termination
LATA	Local Access Transport Area
LEC	Local Exchange Carrier
VGB	Voice Grade Basic

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8. References

8.1 Miscellaneous Publications

PUB 43401 Transmission Specifications for Private Line Metallic Circuits

IEEE 820 Telephone Loop Performance Characteristics - 1985

8.2 Ordering Information

All documents are subject to change and their citation in this document reflects the most current information available at the time of printing. Readers are advised to check status and availability of all documents.

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