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Magalie Roman Salas
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445 12th Street, S.W.
Washington, D.C. 20554

RE: CS Docket No. 00-96 -- Ex Parte Filing

Dear Ms. Salas:

On behalf of the National Association of Broadcasters ("NAB") and the Association of Local Television Stations ("ALTV"), I enclose two copies of the following documents published by Telcordia Technologies (formerly Bellcore):

1. Television Special Access and Local Channel Services -- Transmission Parameter Limits and Interface Combinations (GR-338-CORE) (Dec. 1995)
2. Television Special Access and Local Channel Services -- Transmission Parameter Limits and Interface Combinations (GR-338-ILR) (July 1996)

These documents were referred to in our *ex parte* submission dated July 6, 2001.

Very truly yours,



Thomas P. Olson

cc: Eloise Gore, Cable Services Bureau

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Performance from Experience

Television Special Access and Local Channel Services - Transmission Parameter Limits and Interface Combinations

Telcordia Technologies Generic Requirements
GR-338-CORE
Issue 1, December 1995

Comments Requested (See Preface)

Television Special Access and Local Channel Services - Transmission Parameter Limits and Interface Combinations

This document replaces: TR-TSV-000338, Issue 2, August 1993.

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Preface

The Telcordia Interactive GR Process

Generic Requirements (GRs) provide the Telcordia view of proposed generic criteria for telecommunications equipment, systems, or services. GRs are available through a subscription ordering process from Telcordia. A one-time subscription fee entitles the subscriber to receive the baseline GR (GR-CORE) along with the Issues List Report (GR-ILR) and Revisions released until the entire package is reissued. Each baseline GR outlines the Telcordia intended release plans. Telcordia is making the transition to the new GRs from the former Framework Advisories (FAs), Technical Advisories (TAs), and Technical References (TRs). Telcordia will identify the stage or phase of any particular release and the level or expectation of any industry or subscriber interaction.

FA-TA-TR to GR

Telcordia GRs represent a change from the former generic requirements document releases known as FAs, TAs, and TRs, which reflected a relative maturity level of the proposed requirements. The new GR integrates those three versions into a single entity. When appropriate, industry members will be invited to participate in the early development stage of these requirements. Depending on the extent of early interactions, the first release of a new GR may have fewer issues to be resolved than the "traditional TA or TR" because many of the issues that normally would have surfaced during the Open Comment Period would have been addressed, and possibly resolved, before release of the GR. Maturity level and completeness of the individual requirements enumerated in the GR and the full GR itself will be identified in the document's Preface, the Introduction, and throughout the document as necessary. Terms such as early development, preliminary or relatively mature will communicate maturity level to the subscriber.

Transition Phase

New, first-time releases of requirements (not necessarily only new technologies) will use the new GR process, including the early industry interaction phase. Such projects will, as appropriate, solicit industry participation through DIGEST announcements. The announcements will outline details such as the expected level of participation and commitment by detailing equipment, system, or service availability; level of participants' technical expertise; expected duration of the project; and frequency of meetings. The participation criteria and understanding of involved parties' expectations may be unique to each project. Existing TA or TR projects may be converted directly to GRs and will use Issues List Reports to set forth issues that arise during comment solicitation and review.

Other more complex Telcordia projects (e.g., LSSGR, OTGR, or TSGR) may transition to the new GR format more slowly.

Comments and Issues List Report Mechanism

Telcordia encourages and welcomes nonproprietary comments on the content and presentation of GR material and will accept subscribers' comments throughout the life of the GR. Telcordia will review and respond directly to subscribers, and as appropriate, may periodically compile issues derived from such comments or from technology changes, along with status or proposed resolutions, and publish them in the form of a GR Issues List Report. Telcordia will respond to all comments, whether directly to the submitter or through the Issues List Report.

In the Telcordia view, not all comments submitted need become issues requiring subscriber/industry review, nor may they be germane or suitable to the Telcordia proposed generic requirements. The Issues List Report (ILR) is not intended to specifically identify comment submitters by name or company. It reflects a distillation and compilation of all appropriate comments that address specific technical issues having an impact on the requirements as originally presented in the GR, and, that in the Telcordia view, need further subscriber/industry review. The ILR may also contain suggested editorial or clarification changes or corrections.

The Issues List Report will automatically be provided to all subscribers of this GR. It is intended to be the means to convey information about the status of the technical requirements and to open dialog on any proposed changes before such changes are finalized. Subscribers are encouraged to comment after reviewing the Issues List Report. When appropriate, significant changes or additional material may also be released as Revisions to the GR-CORE. The initial or baseline GR-CORE, the most current Issues List Report, and any published Revisions constitute the most up-to-date version of these proposed generic requirements. As necessary, the entire package may be reissued to incorporate all changes. Notification will be released in the Telcordia DIGEST announcing Issues List Reports, Revisions, or planned complete reissues.

GR-338-CORE Relative Maturity Level, Status, and Plans

This GR presents the stable set of proposed generic requirements for Television Special Access and Local Channel Services - Transmission Parameter Limits and Interface Combinations. Over the past six months, issues have been worked with those interested parties involved in the Early Industry Interaction phase of this process. If necessary, further outstanding issues will be released in GR-338-ILR.

Formatting Comments

To facilitate review of and response to your comments, Telcordia would appreciate your use of the following format:

- A. Identify the GR #, Issue #, and Date.
- B. Identify comments by citing the corresponding Section, Paragraph, Requirement, or Issue ID number(s) used in the GR or in the Issues List Report, and group comments within these headers:
 1. General/Overall Comments
 2. Major Business Issues/Concerns
 3. Specific Technical Comments
 4. Implementation Queries/Concerns
 5. Administrative/Editorial Comments
 6. Miscellaneous Comments.
- C. Provide a contact person in your company for comment clarification.

Where and When to Submit Comments

While comments are welcome at any time, release of Issues List Reports or Revisions may depend upon either the extent and complexity of comments submitted and/or the Telcordia planned schedule for such releases.

Please send comments to:

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1 Introduction

1.1 General

This document describes Television Special Access and Local Channel Services, and associated audio channels, that may be offered by the Local Exchange Carriers (LECs) to Interexchange Carriers (ICs) or to any other customer for either: (a) access to an IC or (b) point-to-point service within a LATA. The term Interexchange Carrier is used to denote a common carrier authorized to provide telecommunications services between Local Access and Transport Areas (LATAs). The description herein covers distinguishing service features, technical specifications, and interfaces.

The LECs will provide IntraLATA facilities for Television Special Access Service from the end-user's Point of Termination (POT) within the LATA to the POT of an IC or other customer. This is a physical point where the LATA access service cross-connects and the division of responsibility occurs. For a point-to-point service within a LATA, the LECs will provide facilities between the end-user's POT at each end of the circuit.

1.2 Purpose

The purpose of this document is to describe Television Special Access and Local Channel Services, and associated audio channels, by providing interface combinations and technical specifications. In particular, it is to provide a quantitative and qualitative description of the service and its interfaces so that compatible operation will be achieved. It covers, specifically, services TV1 and TV2; services TV3 and TV4 will be documented in GR-2904-CORE.

Future services may be offered using the parameters of AES/EBU (Audio Engineering Society/European Broadcast Union) standards. Performance requirement from these standards may need to be further developed.

It is not the intent of this document to provide specific ordering information.

1.3 Reasons for Reissue

This document was originally based on ANSI (American National Standards Institute) standard T1.502-1988. New technologies have emerged since the completion of this standard in 1988. Specifically, interface and performance specifications for single and multiple channels fiber based analog system shall be addressed. This document also replaces TR-TSV-000338, Issue 2, August 1993.

1.4 Applicability of Technical Specifications

The technical specifications in this document apply to both Television Special Access and Local Channel Services. Also it complies with EIA RS 250C and ANSI T1.502-1988, and will comply with revised ANSI T1.502 when appropriate, except traditional route miles between end terminals is incorporated with the number of active devices.

Parameters limits of ANSI T1.505-1989 are objectives for 20-kHz audio signals associated with video, not requirements. Should future performance data support the requirements of ANSI T1.505-1989, then the acceptance limits shall be re-considered.

If a LEC provides intraLATA access and Local Channel Service where the circuit extends beyond the LATA, and where other LECs or ICs are involved, each LEC is responsible for the performance of their segment of the circuit.

1.5 Document Organization

This document consists of eleven sections, including an appendix, references, glossary, a Requirement-Object List (ROL), and a Requirement-Object Index (ROI).

Section 1 addresses general concerns, purpose, applicability, document organization, and terminology.

Section 2 provides a brief description of the services, including service features and options.

Section 3 describes the meanings of the interface codes, defines the NC and NCI code components, and gives compatible interface combinations.

Section 4 covers the technical specifications for the services. This includes sketches and technical characteristics.

Section 5 covers the electrical interface specifications.

Section 6 contains the interface illustrations for each service.

Appendix A: Conversion Tables - IRE Units and Decibels.

Appendix B: Conversion Tables - Voltage and IRE Units.

References.

Glossary.

Requirement-Object List.

Requirement-Object Index.

1.6 Requirements Terminology

The following requirements terminology is used throughout this document:

- **Requirement** — Feature or function that, in the Telcordia view, is *necessary* to satisfy the needs of a typical Telcordia Client. Failure to meet a requirement may cause application restrictions, result in improper functioning of the product, or hinder operations. A Requirement contains the words *shall* or *must* and is flagged by the letter “**R**.”
- **Conditional Requirement** — Feature or function that, in the Telcordia view, is *necessary in specific Telcordia Client applications*. If a Telcordia Client identifies a Conditional Requirement as necessary, it shall be treated as a requirement for the application(s). Conditions that may cause the Conditional Requirement to apply include, but are not limited to, certain Telcordia Client application environments, elements, or other requirements, etc. A Conditional Requirement is flagged by the letters “**CR**.”
- **Objective** — Feature or function that, in the Telcordia view, is *desirable* and may be required by a Telcordia Client. An Objective represents a goal to be achieved. An Objective may be reclassified as a Requirement at a specified date. An objective is flagged by the letter “**O**” and includes the words *it is desirable* or *it is an objective*.
- **Conditional Objective** — Feature or function that, in the Telcordia view, is *desirable in specific Telcordia Client applications* and may be required by a Telcordia Client. It represents a goal to be achieved in the specified Condition(s). If a Telcordia Client identifies a Conditional Objective as necessary, it shall be treated as a requirement for the application(s). A Conditional Objective is flagged by the letters “**CO**.”
- **Condition** — The circumstances that, in the Telcordia view, will cause a Conditional Requirement or Conditional Objective to apply. A Condition is flagged by the letters “**Cn**.”

1.7 Requirement Labeling Conventions

As part of the Telcordia new GR Process, proposed requirements and objectives are labeled using conventions that are explained in the following two sections.

1.7.1 Numbering of Requirement and Related Objects

Each Requirement, Objective, Condition, Conditional Requirement, and Conditional Objective object is identified by both a local and an absolute number. The local number consists of the object's document section number and its sequence number in the section (e.g., **R3-1** is the first Requirement in Section 3). The local number appears in the margin to the left of the Requirement. A

Requirement object's local number may change in subsequent issues of a document if other Requirements are added to the section or deleted.

The absolute number is a permanently assigned number that will remain for the life of the Requirement; it will not change with new issues of the document. The absolute number is presented in brackets (e.g., [2]) at the beginning of the requirement text.

Neither the local nor the absolute number of a Conditional Requirement or Conditional Objective depends on the number of the related Condition(s). If there is any ambiguity about which Conditions apply, the specific Condition(s) will be referred to by number in the text of the Conditional Requirement or Conditional Objective.

References to Requirements, Objectives, or Conditions published in other Generic Requirements documents will include both the document number and the Requirement object's absolute number. For example, **R2345-12** refers to Requirement [12] in GR-2345-CORE.

2 Service Description

2.1 Brief Description of Service

Television Special Access and Local Channel Services are offered to Interexchange Carriers (ICs) and other customers by the LEC. Applications include, but are not limited to, full-time and part-time commercial broadcast television quality, noncommercial broadcast television quality, video teleconferencing, distance-learning applications, surveillance, closed-circuit television or any other video applications that may require TV1 or TV2 quality.

Not all service configurations described in this document are tariffed by all LECs. The service configurations in this document are offered only by those LECs that have included them in their Access and Local Channel Service tariffs, and where appropriate facilities are available. Specific services and arrangements not described in this document may be available through direct negotiation with the LECs.

2.1.1 Service TV1

Service TV1 provides a one-way transmission capability for one to four standard system M National Television Systems Committee (M-NTSC) video signals. This service can be provided as video only (no audio) or with one or two associated 15-kHz (or 20-kHz where available) audio signals for each video channel between a customer's premises and the point of termination (POT) of an IC, or between customer's premises within a LATA. Additionally, three or four 15-kHz (or 20-kHz) audio signals with each video channel may be provided, where available. The audio can be combined with the video and carried on the same transmission facility or provided on separate audio facilities.

2.1.2 Service TV2

Service TV2 provides a one-way transmission capability for a standard M-NTSC video signal and one or two associated 5-kHz audio signals, between an end-user's premises and the point of termination (POT) of an IC, or between end-user's premises within a LATA. The audio may be provided on transmission facilities separate from the video, or be combined with the video.

2.2 Optional Features

TV1 and TV2 services offer options: Central Office (CO) bridging, CO switching, multichannel and combinations of these options. TV1 services may also be provided via a special tariff assembly, for example, multiple channels of video and audio over

one facility or matrix switch arrangements at designated Video Hubs. Examples of other optional features (where available) include volume discounts associated with transmission of multiple channels of video over one facility, and customer network management features. Single and multichannel analog video (up to four channels) fiber optic systems should meet all specifications of TV1/TV2 parameters and limits as stated in Table 4-1.

2.3 Availability

O2-1 [1] The availability of a television service channel is the portion of time that the channel is capable of meeting its performance limits. The objective value is 99.99 percent of the annual operating time.

3 Network Channel (NC) Code and Network Channel Interface (NCI) Codes

3.1 General

This section provides the NC and NCI codes for Television Special Access and Local Channel Services. First, a definition of the codes is given, followed by tables of compatible interfaces.

3.2 Network Channel (NC) Code

The Network Channel code is an encoded representation used to identify both switched and non-switched channel services. It is a four-character code that consists of two (2) data elements: (1) Channel Service Code and (2) Optional Feature Code. The NC code describes the channel parameters. Table 3-1 shows the format of the NC structure.

Table 3-1. Network Channel Code Format

Network Channel Code				
Field Identity	Channel Service Code		Optional Feature Code	
Character Position	1	2	3	4
Code	A	A	A/N	A/N

(1) The Channel Service code is a two-character, alpha code that describes the channel service in an abbreviated form. The Channel Service code will typically be specified as the service code of the service. This code is always filled in.

(2) The Optional Feature code is a two-character alpha or alphanumeric code that represents the option codes available for each channel service code. Varying combinations of this code further identifies the type of service requested (i.e., CO bridging & switching). The NC optional feature code field is always filled in. A hyphen (-) is used in positions 3 and/or 4 of the NC to indicate the absence of features or option. Table 3-2 shows the allowable NC codes and combinations.

Table 3-2. Allowable NC Codes and Combinations

NC Code TV - Television Channel Service TV1				
Network Channel Service Code	Option	Char 3	Option(s)	Char 4
TV	None	-	None	-
			C.O. Bridged	B
			C.O. Switched	S
			B + S	C
			Nonstandard	Z
			Multichannel	M

NC Code TW - Television Channel Service TV2				
Network Channel Service Code	Option	Char 3	Option(s)	Char 4
TW	None	-	None	-
			C.O. Bridged	B
			C.O. Switched	S
			B + S	C
			Nonstandard	Z
			Multichannel	M

3.3 Network Channel Interface (NCI) Code

The NCI code is an encoded representation used to identify five (5) interface elements located at a POT or customer location. The interface elements are (1) Total Conductors, (2) Protocol, (3) Impedance, (4) Protocol Options, and (5) Transmission Level Point is ignored in TV Services; however, these positions have been used to indicate the direction of service by some LECs. Table 3-3 shows the format of the NCI code structure.

Table 3-3. Network Channel Interface Code Format

Network Channel Interface Code												
Field Identifier	Total Conductors		Protocol		Imp ^a	Del ^b	Protocol Options			Del	TLP Level TX RX	
Character Position	1	2	3	4	5	6	7	8	9	10	11	12
Code	N	N	A	A	N		A/N	A/N	A/N		A/N	A/N

a. Imp= Impedance

b. Del = Delimiter - Required for overall code readability; generally a period (.) or a virgule (\,/).

1. Total conductors (character positions 1 and 2) is a two-character numeric code that represents the total number of physical conductors (i.e., wires) required at the interface. This field is always filled. Total conductors are described in Table 3-4.
2. Protocol (character positions 3 and 4) is a two-character alpha code that defines requirements for the interface regarding transmission. This field is always filled. The protocol combinations specified at the ends of a circuit need not be the same. However, only certain combinations are technically possible. Protocol codes (and associated options) are described in Table 3-5.
3. Impedance (character position 5) is a one-character numeric code representing the nominal reference impedance that will terminate the channel for the purpose of evaluating transmission performance. This field is always filled. Impedance codes are described in Table 3-6.
4. Protocol Options (character positions 7, 8 and 9) is a one- to three-character alpha, numeric, or alphanumeric code that describes additional features of the protocol to be used. Protocol option codes are always left-justified when fewer than three characters are specified. Protocol Options codes are described in Table 3-5.
5. Transmission Level Point (TLP) (character positions 11 and 12) is ignored for Television Special Access and Local Channel Services; however, these positions have been used to indicate the direction of service by some LECs. TLP (Directionality) codes are described in Table 3-7.

Table 3-4. Total Conductor^a

Number of Conductors^b	Code
2 (combined video/audio or video only)	02
4 (1 video and 1 channel audio)	04
6 (1 video and 2 channels audio)	06
8 (1 video and 3 channels audio)	08
10 (1 video and 4 channels audio)	10
8 (2 video and 1 channel audio)	08
12 (2 video and 2 channels audio)	12
16 (2 video and 3 channels audio) ^c	16
20 (2 video and 4 channels audio)	20
12 (3 video and 1 channel audio)	12
18 (3 video and 2 channels audio)	18
24 (3 video and 3 channels audio)	24
30 (3 video and 4 channels audio)	30
16 (4 video and 1 channel audio)	16
24 (4 video and 2 channels audio)	24
32 (4 video and 3 channels audio)	32
40 (4 video and 4 channels audio)	40

- a. There are two conductors associated with each video or audio channel.
- b. Number of audio channels listed here is associated with each video channel.
- c. The total number of channels is 8 (2 video channels + 2 video channels x 3 audio channels/video channel = 8 channels). Therefore, number of conductors is 16 (8 channels x 2 conductors/channel = 16 conductors).

Table 3-5. Protocol Codes and Selected Options

Code	Option	Definition
TV		Television interface
	0	Video only (TV1)
	1	Combined video and one audio signal (TV1)
	2	Combined video and two audio signals (TV1)
	4	Combined video and four 15-kHz audio signals (TV1)
	5	Video plus one or two (two-wire) 5-kHz audio signals (TV2)
	6	Combined video and three 15-kHz audio signals (TV1)
	15	One Video plus one or two (two-wire) 15-kHz audio signals (TV1)
	15A ^a	One Video plus one through four 15-kHz audio signals (TV1)
	15B	Two Video plus one through four 15-kHz audio signals (TV1)
	15C	Three Video plus one through four 15-kHz audio signals (TV1)
	15D	Four Video plus one through four 15-kHz audio signals (TV1)
	20	One Video plus one through four 20-kHz audio signals (TV1)
	20B ^b	Two Video plus one through four 20-kHz audio signals (TV1)
	20C ^b	Three Video plus one through four 20-kHz audio signals (TV1)
	20D ^b	Four Video plus one through four 20-kHz audio signals (TV1)

- a. Number of audio channels listed here and below is associated with each video channel.
- b. It is pending COMMON LANGUAGE[®] Technical Advisory Group approval.

Table 3-6. Impedance

Value (ohms)	Code
75	6
124	7

Table 3-7. Transmission Level Point (Directionality)

TX	RX
-	0
0	-

3.3.1 NCI Code Example

The code 04TV6.15 contains the following components:

1. **04** - total conductors (i.e., wires)

Table 3-4 defines the allowable entries for this component. This is a two-digit code; however, the zero for the initial digit is generally omitted for simplicity.

2. **TV** - protocol

This example is a television interface protocol. Table 3-5 provides a list of protocol codes and options that apply to Television Special Access and Local Channel Services.

3. **6** - Impedance.

This example is 75 ohms. Table 3-6 defines the allowable entries for this component.

4. **15** - protocol option.

This example assumes that one or two 15-kHz audio signals are provided at the POT. The protocol code and options are defined in Table 3-5.

R3-1 [2] The electrical interface with the LEC for Television Special Access and Local Channel Services provides an interface code for each point of termination (POT). The interface codes for the service desired must be specified by the IC or other customer when ordering Television Special Access and Local Channel Services. This subsection describes these interface codes. For more detailed information regarding NCI codes, see Industry Support Interface (ISI): NC/NCI Code Dictionary, SR-ST5-000307.

3.4 Compatible Interface Combinations for Television Special Access and Local Channel Services

Table 3-8 lists some common compatible interface code combinations for Television Special Access and Local Channel Services.