



**AM-TR-NIS-000131**

# **Ameritech Supertrunking Video Service Interface Specifications**

**(A Technical Description of the User/Network Interface for Ameritech's Supertrunking Video Service)**

To: All Ameritech and Vendor Community

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## TECHNICAL REFERENCE NOTICE

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**GENERAL**

This document describes the User/Network Interface specifications for Ameritech's Supertrunking Video Service.

**1. CHANGE AND REISSUE**

This is the third issue of this document. This issue changes some of the system performance objectives to ensure acceptable performance results over greater distances.

**2. GENERAL**

Ameritech's Supertrunking Video Service (ASVS) provides unidirectional, point-to-point or point-to-multipoint fiber-based transmission service for up to 110 National Television Standards Committee (NTSC) channels of basic and premium video programming.

**3. OVERVIEW**

ASVS is a fiber-based transmission service, with a bandwidth of up to 750 MHz, providing one-way transmission of multiple amplitude modulated (AM) standard 525 line/60 field monochrome or color video signals, and associated audio signals. The signal performance and quality of the video channel is dependent upon the number of signals and the end-to-end distance of the channel. ASVS performs electrical-to-optical and optical-to-electrical conversions of customers' modulated analog video and analog audio signals prior to, and upon completion of, transmission.

Customers may select from packages of up to 30, 60 or 110 channels.

**4. SERVICE DESCRIPTION**

ASVS provides for the one-way transport of analog multicast video and audio channels from customer premises or a video hub office. This service can provide customers who receive video programming from multiple sources with a means of consolidating head-end locations to create a more efficient means of providing service to customers.

**5. INTERFACE REQUIREMENTS**

The physical interface for the multi-channel, analog, NTSC video signal, at both the customer origination and termination sites, will be a telephone company-provided female "F" connector mounted on a rack mounted panel. The "F" connector will have a nominal 75-ohm impedance and a 3/8"-32-2A external threading, and will accept center conductors with a nominal diameter of 0.032 to 0.04 inches (i.e., RG-59/6 cable).

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**5.1. Network Channel Code**

The Network Channel (NC) code, as described in Bellcore Documents SR-STS-000307 and SR STS-000323, is a four-character representation of the channel parameters. It consists of two data elements: (1) a two-character position that specifies the type and quality of the channel; and (2) two positions that specify an available option code for the channel type. The NC code for ASVS is described in the table below:

NC Code	Option Character 3	Option Character 4
ANALOG CONTENT		
TZ	B (Quality #2)	- Point-to-Point
		B Point-to-multipoint

**TZ - Private Line Video Service**

**5.2. Network Channel Interface Code**

The electrical interface with telco-owned facilities is described by a Network Channel Interface (NCI) code. The NCI code, as described in Bellcore Documents SR STS-000307 and SR STS-000323, is comprised of five elements that must be specified by the customer for each Point of Termination when ordering the service. These elements are:

1. The number of conductors as follows:
  - 02 - Single coax connection (one-way service) for combined video/audio
2. The protocol code is as follows:
  - WV - video interface
3. The impedance code:
  - 6 - (75 ohms)
4. The protocol option is as follows:
  - J - VSB-AM RF Wideband Spectrum, 75-ohm coaxial cable termination only.

5. The direction of service can be one of two options:

- O - for the transmit end
- O - for the receive end

Example: 02WV6.J.O- (Video interface w/combined video/audiotransmit end)

**5.3. Interface specifications**

*5.3.1. Optical Transmitter*

The electrical input interface specifications for the optical transmitter at the customer origination site are as follows:

Characteristic	Specification
Frequency Range	54 to 750 MHz
RF Input Level Per Visual Carrier (AM- VSB, 6 MHz Channel)	+25 ± 0.5 dBmV
Return Loss	15 dB (Min)

*5.3.2. Optical Receiver*

The electrical output interface specifications for the optical receiver at the customer termination site are as follows:

Characteristic	Specification
Frequency Range	54 to 750 MHz
RF Output Level Per Visual Carrier (AM- VSB, 6 MHz Channel)	≥25 dBmV (Nom)
Return Loss	15 dB (Min)

**5.4. System Performance Objectives**

The following are the system performance objectives for a point-to-point link utilizing a single fiber transport system, and a point-to-point link utilizing two back-to-back fiber transport systems (i.e., Repeatered):

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<b>SINGLE</b>			
Channel Loading	CNR (dB)	CTB (dBc)	CSO (dBc)
$\leq 30$	54.0	-61.0	-60.0
31 to $\leq 60$	52.0	-61.0	-60.0
61 to $\leq 110$	50.0	-61.0	-60.0
Frequency Re- sponse (Peak to Valley)	$\pm 1.75$ dB		
Optical Link Bud- get	$\leq 10.0$ dB		
<b>REPEATERED</b>			
Channel Loading	CNR (dB)	CTB (dBc)	CSO (dBc)
$\leq 30$	50.0	-55.0	-55.0
31 to $\leq 60$	48.0	-55.0	-55.0
61 to $\leq 110$	46.0	-55.0	-55.0
Frequency Re- sponse (Peak to Valley)	$\pm 3.50$ dB		
Optical Link Bud- get	$\geq 10.0$ dB, $\leq 28$ dB		

**NOTES:**

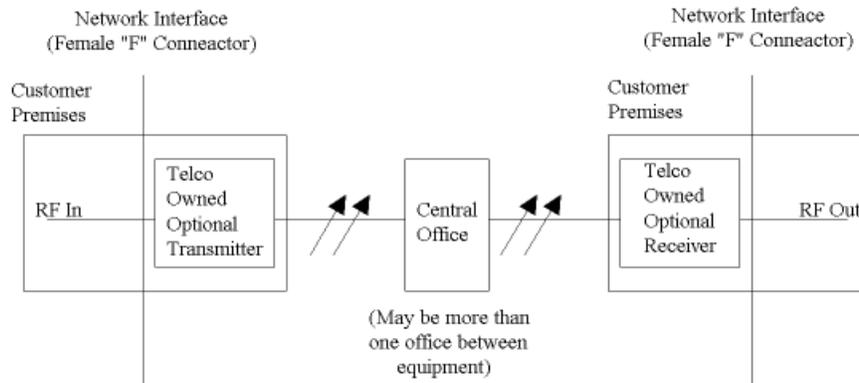
1. CNR: Carrier to Noise Ratio, CTB: Composite Triple Beat, CSO: Composite Second Order.
2. Measured with continuous wave (CW) carriers.
3. Specified RF input levels to optical transmitter.

The definition of and the methods available for measuring these performance parameters are described in the NCTA document listed in the reference.

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## 6. Service Architecture Figure



Note: Repeater equipment, if required, will be placed in the Central Office.

## 7. References

Primary References:

NCTA Recommended Practices For Measurements On Cable Television Systems, Second Edition, October 1993.

Secondary References:

Telcordia (formerly Bellcore) SR STS-000307, NC/NCI Code Dictionary, Issue 4, February 1993.

Telcordia (formerly Bellcore) SR STS-000323, NC/NCI Compatibility Guide, Issue 3, February 1993.

To order NCTA documents, contact:

National Cable Television Association (NCTA), Science & Technology Department, 1724 Massachusetts Ave., NW, Washington, DC 20036-1969, (202) 775-3550

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