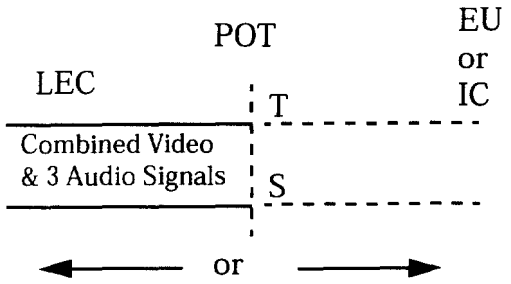
6.6 Interface Type 02TV6.6

Application:	Provides a one-way combined transmission of standard M-NTSC video signal, and three associated 15-kHz audio signals.
Operating mode:	Full- or part-time video and associated audio signals
Physical description:	Coaxial cable with BNC connector
Service:	TV1
Electrical Features	
Impedance:	75 ohms unbalanced
Operating levels (nominal):	140 IRE peak-to-peak video (sync tip to reference white) and 14 IRE peak-to-peak subcarrier
Frequency range:	20 Hz to 6.6 MHz (video signal plus combined audio)
Subcarrier frequency:	5.8 MHz, 6.4 MHz and 7.5 MHz (Subcarrier frequency(s) may vary, as appropriate)
Subcarrier deviation:	A maximum deviation of ±185 KHz is permitted between any two subcarriers with +18 dBm[a] input at 404 Hz
Audio Pre-emphasis:	75 μ sec (see Figure 4-5)

a. This level may not be continuously applied to audio channels.

Illustration:



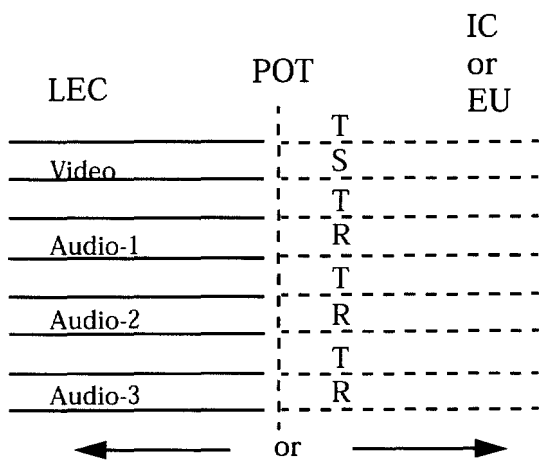
Arrows indicate direction of transmission

6.7 Interface Type 08TV6.15A/08TV6.20

Application:	Provides a one-way transmission of standard M-NTSC video signal, and three associated 15-kHz (20-kHz where available) audio signals.	
Operating mode:	Full- or part-time video and associated audio signals	
Physical description:	Coaxial cable with BNC connector for video and two-wire (T, R) or 310-type connector for audio	
Service:	TV1	
Electrical Features	**Video**	**Audio**
Impedance:	75 ohms unbalanced	600 ohms balanced
Overload Point:	168 IRE peak-to-peak (sync tip to reference white)	+ 18 dBm[a] at 404 Hz
Operating levels (nominal):	140 IRE peak-to-peak (sync tip to reference white)	+8 vu (max) program level
Max. Steady-State Levels:	N/A	+8 dBm, 50 Hz - 404 Hz
(averaged over 1 second)		0 dBm, 404 Hz - 15 kHz/20 kHz
Frequency range:	20 Hz to 10 MHz	50 Hz to 15 kHz 20 Hz to 20 kHz

a. This level may not be continuously applied to audio channels.

Illustration:



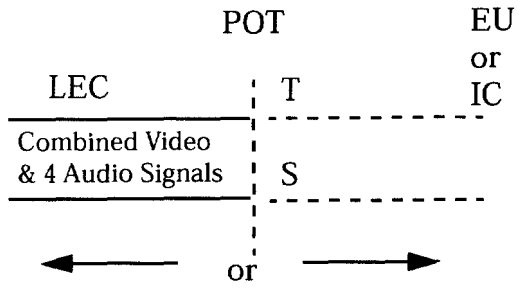
Arrows indicate direction of transmission

6.8 Interface Type 02TV6.4

Application:	Provides a one-way combined transmission of standard M-NTSC video signal, and four associated 15-kHz audio signals.
Operating mode:	Full- or part-time video and associated audio signals
Physical description:	Coaxial cable with BNC connector
Service:	TV1
Electrical Features	
Impedance:	75 ohms unbalanced
Operating levels (nominal):	140 IRE peak-to-peak video (sync tip to reference white) and 14 IRE peak-to-peak subcarrier
Frequency range:	20 Hz to 10 MHz (video signal plus combined audio)
Subcarrier frequency:	5.8 MHz, 6.4 MHz, 7.5 MHz and 8.2 MHz (Subcarrier frequency(s) may vary, as appropriate)
Subcarrier deviation:	A maximum deviation of ±185 KHz is permitted between any two subcarriers with +18 dBm[a] input at 404 Hz
Audio Pre-emphasis:	75 μ sec (see Figure 4-5)

a. This level may not be continuously applied to audio channels.

Illustration:



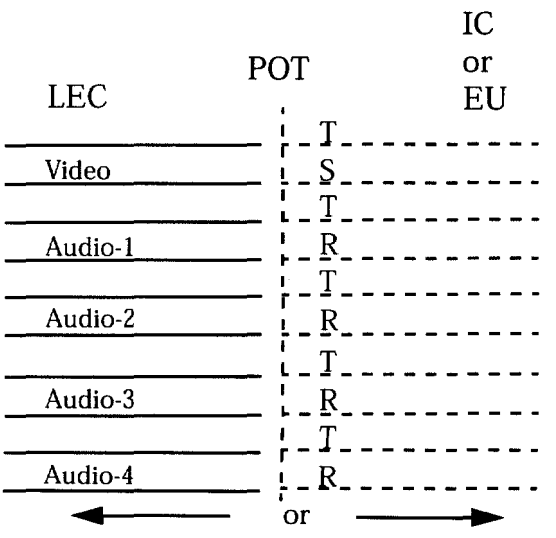
Arrows indicate direction of transmission

6.9 Interface Type 10TV6.15A/10TV6.20

Application:	Provides a one-way transmission of standard M-NTSC video signal, and four associated 15-kHz (20-kHz where available) audio signals.	
Operating mode:	Full- or part-time video and associated audio signals	
Physical description:	Coaxial cable with BNC connector for video and two-wire (T, R) or 310-type connector for audio	
Service:	TV1	
Electrical Features	**Video**	**Audio**
Impedance:	75 ohms unbalanced	600 ohms balanced
Overload Point:	168 IRE peak-to-peak (sync tip to reference white)	+18 dBm[a] at 404 Hz
Operating levels (nominal):	140 IRE peak-to-peak (sync tip to reference white)	+8 vu (max) program level
Max. Steady-State Levels:	N/A	+8 dBm, 50 Hz - 404 Hz
(averaged over 1 second)		0 dBm, 404 Hz - 15 kHz/20 kHz
Frequency range:	20 Hz to 10 MHz	50 Hz to 15 kHz 20 Hz to 20 kHz

a. This level may not be continuously applied to audio channels.

Illustration:



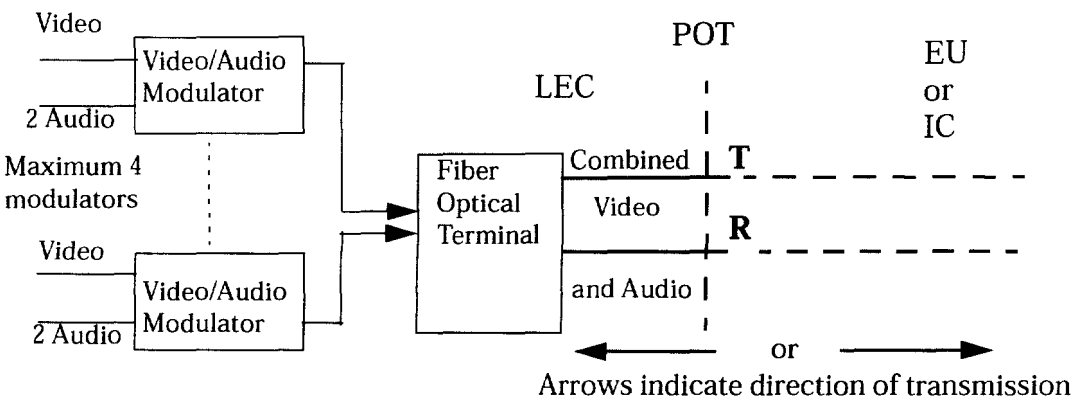
Arrows indicate direction of transmission

6.10 Interface Type 12TV6.15B/12TV6.20B; 18TV6.15B/18TV6.20B; and 24TV6.15B/24TV6.20B

Application:	Provides a one-way transmission of 2 through 4 baseband standard M-NTSC video signals, with 2 associated 15-KHz (20-KHz where available) audio signals with each video channel.
Operating mode:	Combined full video and associated audio signal
Physical description:	Coaxial cable with BNC connector
Service:	TV1
Electrical Features	
Impedance:	75 ohms unbalanced
Operating levels (nominal):	140 IRE peak-to-peak video (sync tip to reference white) and 14 IRE peak-to-peak subcarrier
Frequency range:	20 Hz to 10 MHz (video signal plus combined audio)
Subcarrier frequency:	5.8 MHz, 6.4 MHz, 7.5 MHz and 8.2 MHz (Subcarrier frequency(s) may vary, as appropriate)
Subcarrier deviation:	A maximum deviation of ±185 KHz is permitted between any two subcarriers with +18 dBm[a] input at 404 Hz
Audio Pre-emphasis:	75 μ sec (see Figure 4-5)

a. This level may not be continuously applied to audio channels.

Illustration:

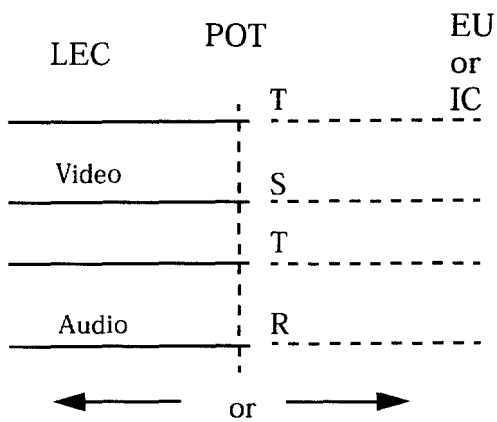


6.11 Interface Type 04TV6.5

Application:	Provides a one-way transmission of standard M-NTSC video signal, and one associated 5-kHz audio signal.	
Operating mode:	Full- or part-time video and associated audio signals	
Physical description:	Coaxial cable with BNC connector for video and two-wire (T, R) or 310-type connector for audio	
Service:	TV1	
Electrical Features	**Video**	**Audio**
Impedance:	75 ohms unbalanced	600 ohms balanced
Overload Point:	168 IRE peak-to-peak (sync tip to reference white)	+18 dBm[a] at 404 Hz
Operating levels (nominal):	140 IRE peak-to-peak (sync tip to reference white)	+8 vu (max) program level
Max. Steady-State Levels:	N/A	+8 dBm, 100 Hz - 404 Hz
(averaged over 1 second)		0 dBm, 404 Hz - 5 kHz
Frequency range:	20 Hz to 4.2 MHz	100 Hz to 5 kHz

a. This level may not be continuously applied to audio channels.

Illustration:



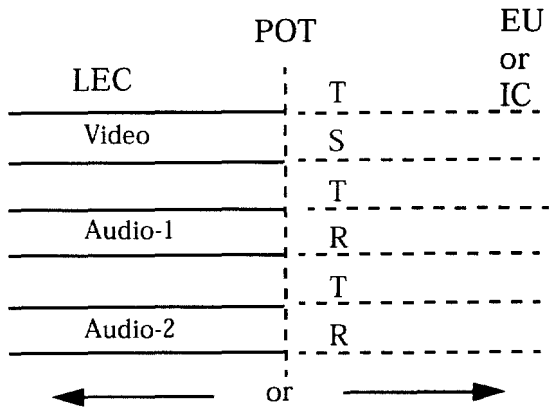
Arrows indicate direction of transmission

6.12 Interface Type 06TV6.5

Application:	Provides a one-way transmission of standard M-NTSC video signal, and two associated 5-kHz audio signals.	
Operating mode:	Full- or part-time video and associated audio signals	
Physical description:	Coaxial cable with BNC connector for video and two-wire (T, R) or 310-type connector for audio	
Service:	TV1	
Electrical Features	**Video**	**Audio**
Impedance:	75 ohms unbalanced	600 ohms balanced
Overload Point:	168 IRE peak-to-peak (sync tip to reference white)	+ 18 dBm[a] at 404 Hz
Operating levels (nominal):	140 IRE peak-to-peak (sync tip to reference white)	+8 vu (max) program level
Max. Steady-State Levels:	N/A	+8 dBm, 100 Hz - 404 Hz
(averaged over 1 second)		0 dBm, 404 Hz - 5 kHz
Frequency range:	20 Hz to 4.2 MHz	100 Hz to 5 kHz

a. This level may not be continuously applied to audio channels.

Illustration:



Arrows indicate direction of transmission

Appendix A: Conversion Tables - IRE Units and Decibels (Based on a Ref of 100 IRE units)

Conversion from IRE to dB

IRE	dB	IRE	dB	IRE	dB	IRE	dB
1	0.09	-1	-0.09	51	3.58	-51	-6.20
2	0.17	-2	-0.18	52	3.64	-52	-6.38
3	0.26	-3	-0.26	53	3.69	-53	-6.56
4	0.34	-4	-0.35	54	3.75	-54	-6.74
5	0.42	-5	-0.45	55	3.81	-55	-6.94
6	0.51	-6	-0.54	56	3.86	-56	-7.13
7	0.59	-7	-0.63	57	3.92	-57	-7.33
8	0.67	-8	-0.72	58	3.97	-58	-7.54
9	0.75	-9	-0.82	59	4.03	-59	-7.74
10	0.83	-10	-0.92	60	4.08	-60	-7.96
11	0.91	-11	-1.01	61	4.14	-61	-8.18
12	0.98	-12	-1.11	62	4.19	-62	-8.40
13	1.06	-13	-1.21	63	4.24	-63	-8.64
14	1.14	-14	-1.31	64	4.30	-64	-8.87
15	1.21	-15	-1.41	65	4.35	-65	-9.12
16	1.29	-16	-1.51	66	4.40	-66	-9.37
17	1.36	-17	-1.62	67	4.45	-67	-9.63
18	1.44	-18	-1.72	68	4.51	-68	-9.90
19	1.51	-19	-1.83	69	4.56	-69	-10.17
20	1.58	-20	-1.94	70	4.61	-70	-10.46
21	1.66	-21	-2.05	71	4.66	-71	-10.75
22	1.73	-22	-2.16	72	4.71	-72	-11.06
23	1.80	-23	-2.27	73	4.76	-73	-11.37
24	1.87	-24	-2.38	74	4.81	-74	-11.70
25	1.94	-25	-2.50	75	4.86	-75	-12.04
26	2.01	-26	-2.62	76	4.91	-76	-12.40
27	2.08	-27	-2.73	77	4.96	-77	-12.77
28	2.14	-28	-2.85	78	5.01	-78	-13.15
29	2.21	-29	-2.97	79	5.06	-79	-13.56
30	2.28	-30	-3.10	80	5.11	-80	-13.98

Conversion from IRE to dB

IRE	dB	IRE	dB	IRE	dB	IRE	dB
31	2.35	-31	-3.22	81	5.15	-81	-14.42
32	2.41	-32	-3.35	82	5.20	-82	-14.89
33	2.48	-33	-3.48	83	5.25	-83	-15.39
34	2.54	-34	-3.61	84	5.30	-84	-15.92
35	2.61	-35	-3.74	85	5.34	-85	-16.48
36	2.67	-36	-3.88	86	5.39	-86	-17.08
37	2.73	-37	-4.01	87	5.44	-87	-17.72
38	2.80	-38	-4.15	88	5.48	-88	-18.42
39	2.86	-39	-4.29	89	5.53	-89	-19.17
40	2.92	-40	4.44	90	5.58	-90	-20.00
41	2.98	-41	-4.5	91	5.62	-91	-20.92
42	3.05	-42	-4.73	92	5.67	-92	-21.94
43	3.11	-43	4.88	93	5.71	-93	-23.10
44	3.17	-44	-5.04	94	5.76	-94	-24.44
45	3.23	-45	-5.19	95	5.80	-95	-26.02
46	3.29	-46	-5.35	96	5.85	-96	-27.96
47	3.35	-47	-5.5	97	5.89	-97	-30.46
48	3.41	-48	-5.68	98	5.93	-98	-33.98
49	3.46	-49	-5.85	99	5.98	-99	-40.00
50	3.52	-50	-6.02	100	6.02	-100	∞
0.1	1.16	-0.1	-1.14	5.1	79.89	-5.1	-44.41
0.2	2.33	-0.2	-2.28	5.2	81.97	-5.2	-45.05
0.3	3.51	-0.3	-3.39	5.3	84.08	-5.3	-45.67
0.4	4.71	-0.4	-4.50	5.4	86.21	-5.4	-46.30
0.5	5.93	-0.5	-5.59	5.5	88.36	-5.5	-46.91
0.6	7.15	-0.6	-6.67	5.6	90.55	-5.6	-47.52
0.7	8.39	-0.7	-7.74	5.7	92.75	-5.7	-48.12
0.8	9.65	-0.8	-8.80	5.8	94.98	-5.8	-48.71
0.9	10.92	-0.9	-9.84	5.9	97.24	-5.9	-49.30
1	12.20	- 1	-10.87	6	99.53	-6	-49.88
1.1	13.50	-1.1	-11.90	6.1	101.84	-6.1	-50.45
1.2	14.82	-1.2	-12.90	6.2	104.17	-6.2	-51.02
1.3	16.14	-1.3	-13.90	6.3	106.54	-6.3	-51.58
1.4	17.49	-1.4	-14.89	6.4	108.93	-6.4	-52.14

Conversion from IRE to dB

IRE	dB	IRE	dB	IRE	dB	IRE	dB
1.5	18.85	-1.5	-15.86	6.5	111.35	-6.5	-52.68
1.6	20.23	-1.6	-16.82	6.6	113.80	-6.6	-53.23
1.7	21.62	-1.7	-17.78	6.7	116.27	-6.7	-53.76
1.8	23.03	-1.8	-18.72	6.8	118.78	-6.8	-54.29
1.9	24.45	-1.9	-19.65	6.9	121.31	-6.9	-54.81
2	25.89	-2	-20.57	7	123.87	-7	-55.33
2.1	27.35	-2.1	-21.48	7.1	126.46	-7.1	-55.84
2.2	28.82	-2.2	-22.38	7.2	129.09	-7.2	-56.35
2.3	30.32	-2.3	-23.26	7.3	131.74	-7.3	-56.85
2.4	31.83	-2.4	-24.14	7.4	134.42	-7.4	-57.34
2.5	33.35	-2.5	-25.01	7.5	137.14	-7.5	-57.83
2.6	34.90	-2.6	-25.87	7.6	139.88	-7.6	-58.31
2.7	36.46	-2.7	-26.72	7.7	142.66	-7.7	-58.79
2.8	38.04	-2.8	-27.56	7.8	145.47	-7.8	-59.26
2.9	39.64	-2.9	-28.39	7.9	148.31	-7.9	-59.73
3	41.25	-3	-29.21	8	151.19	-8	-60.19
3.1	42.89	-3.1	-30.02	8.1	154.10	-8.1	-60.61
3.2	44.54	-3.2	-30.82	8.2	157.04	-8.2	-61.10
3.3	46.22	-3.3	-31.61	8.3	160.02	-8.3	-61.54
3.4	47.91	-3.4	-32.39	8.4	163.03	-8.4	-61.98
3.5	49.62	-3.5	-33.17	8.5	166.07	-8.5	-62.42
3.6	51.36	-3.6	-33.93	8.6	169.15	-8.6	-62.85
3.7	53.11	-3.7	-34.69	8.7	172.27	-8.7	-63.27
3.8	54.88	-3.8	-35.43	8.8	175.42	-8.8	-63.69
3.9	56.68	-3.9	-36.17	8.9	178.61	-8.9	-64.11
4	58.49	-4	-36.90	9	181.84	-9	-64.52
4.1	60.32	-4.1	-37.63	9.1	185.10	-9.1	-64.92
4.2	62.18	-4.2	-38.34	9.2	188.40	-9.2	-65.33
4.3	64.06	-4.3	-39.05	9.3	191.74	-9.3	-65.72
4.4	65.96	-4.4	-39.74	9.4	195.12	-9.4	-66.12
4.5	67.88	-4.5	-40.43	9.5	198.54	-9.5	-66.50
4.6	69.82	-4.6	-41.12	9.6	202.00	-9.6	-66.89
4.7	71.79	-4.7	-41.79	9.7	205.49	-9.7	-67.27
4.8	73.78	-4.8	-42.46	9.8	203.03	-9.8	-67.64

Conversion from IRE to dB

IRE	dB	IRE	dB	IRE	dB	IRE	dB
4.9	75.79	-4.9	-43.11	9.9	212.61	-9.9	-68.01
5	77.83	-5	-43.77	10	216.23	-10	-68.38

Appendix B: Conversion Tables - Voltage and IRE Units

Volts	IRE
0.1	14
0.2	28
0.3	42
0.4	56
0.5	70
0.6	84
0.7	98
0.8	112
0.9	126
1.0	140

Appendix C: References

1. **ANSI T1.502**, *System M-NTSC Television Signals - Network Interface Specifications and Performance Parameters*, 1988.
2. **ANSI T1.505**, *Advanced Digital Program Audio Services - Analog Interface and Performance Specifications*, 1989.
3. **SR-STS-000307**, *NC/NCI Code Dictionary*, Issue 6 (Telcordia, May 1995).
4. **GR-337-CORE**, *Program Audio Special Access and Local Channel Services*, Issue 1 (Telcordia, December 1995).
5. **GR-2904-CORE**, *Generic Requirements For Commercial and Business Quality Video Services - Transmission Parameter Limits and Interface Combinations*, Issue 1 (Telcordia, December 1995).

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3. In the Basic Search Navigation List, select ***Click for Abstract*** to order an available document, or select ***Click for Document*** to view an available document.

Appendix D: Bibliography

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EIA-490, *Standard Test Methods of Measurement for Audio Amplifiers.*

IEEE Std 152, *IEEE Standard for Audio Program Level Measurement*, 1991.

ANSI/IEEE Std 743, *IEEE Standard Methods and Equipment for Measuring the Transmission Characteristics of Analog Voice Frequency Circuits*, 1984.

GR-342-CORE, *High-Capacity Digital Special Access Services - Transmission Parameter Limits and Interface Combinations,* Issue 1 (Telcordia, December 1995).

Appendix E: Glossary

General

Acceptance Limit (AL) - The maximum value of, or deviation from, a design parameter that is allowed at service turnup, or customer acceptance. For a given parameter, this limit bounds the performance on the due date.

Active Device - A device that supplies current for the loop in a network, such as a repeater or amplifier. A device that does not supply power is considered passive.

Carrier - See Interexchange Carrier (IC) and Local Exchange Carrier (LEC).

Channel - An electrical or photonic (in the case of fiber optic-based transmission systems) communications path between two or more points of termination.

COMMON LANGUAGE® Technical Advisory Group - It is composed of members of the communications industry, where locations, facilities, equipment types, interfaces (Network Channel and Network Channel Interface), etc., are developed for the same COMMON LANGUAGE codes (acronyms), identifiable to all within this industry. Common Language is used in communications so that all parties involved in the provisioning and maintenance of a circuit or system type are speaking the same language.

Decibel (dB) - The logarithmic unit of signal power ratio most commonly used in communications. It is used to express the relationship between two signal powers, usually between two acoustic, electrical, or optical signals; it is equal to ten times the common logarithm of the ratio of the two signal powers.

Deviation - The departure from a standard or specified value.

End-User (EU) - Any individual, partnership, association, corporation, government agency, or any other entity that (a) obtains a common line or uses a pay telephone in the operating territory of the operating telephone company, or (b) subscribes to services provided by an IC or uses the services of an IC when the IC provides service(s) for its own use.

Facilities - Any cable, poles, conduit, microwave, or carrier equipment, wire center distributing frames, central office switching equipment, computers (both hardware and software), business machines, etc., utilized to provide (1) the services offered by the operating telephone company, or (2) the services provided by an IC for its own use or for an IC end-user's use.

Headroom - The difference, in decibels, between the typical operating signal level and a peak overload level.

IRE Unit - A unit equal to 1/140 of the peak-to-peak amplitude of the video signal, which is typically one volt. IRE is an acronym for Institute of Radio Engineers, the telecommunications services. A LATA encompasses one or more exchanges that have been grouped to serve common social, economic, and other purposes.

Local Channel Service - A service that provides a transmission path within a LATA to directly connect end-user POTs.

Local Exchange Carrier (LEC) - A common carrier providing communications transport within a LATA.

Loss Deviation - The departure of the actual loss from the designed value.

NTSC (National Television Systems Committee) Signal - The standard North American television transmission signal format intended for the transmission of 525/line/60/field color or monochrome video and associated audio signals.

Network Channel Code - A two-part code that identifies both switched and nonswitched channel services. This four-character code consists of the channel code and optional feature code.

Network Channel Interface Code - A five-part code that describes the interface between the telephone company and the IC. It identifies the physical conductors, protocol code, impedance, protocol options and, where applicable, the transmission level points.

Peak-to-Peak (P-P) - The amplitude (voltage) difference between the most positive and the most negative excursions (peaks) of an electrical waveform.

Point of Termination (POT) - The demarcation point between a local exchange company and a customer or IC. This point establishes the technical interface, the test points, and the points of division of operational responsibility.

Protocol Code - A component of a network channel interface code that is readily associated with the basic electrical function of the interface.

Signal-to-Noise Ratio (S/N Ratio) - The ratio of the signal power to the noise power at a given point (usually expressed in decibels). Generally, the measurement method gives a ratio which is (signal + noise) to noise. If the noise is much less than the signal, the error introduced is negligible.

Special Access Service - A service that provides a transmission path within a LATA to directly connect an IC POT to an end-user POT.

Standard Volume Indicator - The standard volume indicator (SVI) is a device used for measuring the magnitude of audio-frequency electrical signals, such as audio program material.

Subcarrier - A carrier applied as modulation on another carrier, or on an intermediate subcarrier.

Transmission Level Point (TLP) - A point in a transmission system at which the ratio (usually expressed in decibels) of the power of a test signal at that point to the power of the test signal at a reference point is specified. For example, a zero transmission level point (0 TLP) is an arbitrarily established point in a communication circuit to which all relative levels (at other points in the circuit) are referred.

Variation - A measure of stability expresses a change within a given time interval.

Volume Unit (VU) - The unit of measurement for electrical speech power and other complex waveforms as measured by a standard volume indicator whose characteristics and manner of reading are specified in IEEE Std 152-1991. Zero vu equals 0 dBm, that is, 1 mW, in measurement of sinusoidal-wave test-tone power. Note: In common practice, the standard volume indicator is bridged across a transmission system via an 8-dB pad. In this case, a "0" reading on the meter corresponds to + 8 vu.

The following definitions are not in alphabetic order but are in order of the parameters in Section 4.2 for video and audio.

Video Signal - Linear Distortion

Amplitude Response versus Frequency - The video amplitude response versus frequency characteristic of a transmission service channel is an expression of amplitude variation as a function of the baseband frequency of a sine-wave voltage when applied to the transmitting terminal baseband input and measured at the receiving terminal baseband output.

Chrominance-to-Luminance Gain Inequality - Chrominance-to-luminance gain inequality of a transmission service channel is the difference in gain of the chrominance signal (approximately 3-4 MHz) and the low-frequency luminance signal (approximately 2-600 kHz). It is measured as relative chrominance level (RCL) at the transmission service channel output terminals.

Chrominance-to-Luminance Delay Inequality - Chrominance-to-luminance delay inequality (CLDI) of a transmission service channel is the difference in transmission time between the chrominance signal (approximately 3-4 MHz) and the low frequency luminance signal (approximately 2-600 kHz). It is measured at the transmission service channel's output terminals as relative chrominance time (RCT).

Field-Time Waveform Distortion - Field-time waveform distortion (FD) of a transmission service channel is the linear waveform. distortion of the time components from 64 microseconds to 16 milliseconds, that is, time components of the field-time domain. This is also known as field tilt. It is measured at the transmission service channel output terminals.

Line-Time Waveform Distortion - Line-time waveform distortion (LD) of a transmission service channel is the linear waveform distortion of time components from 1 to 64 microseconds, that is, time components of the line-time domain. It is measured at the transmission service channel output terminals.

Short-Time Waveform Distortion - Short-time waveform distortion (SD) of a transmission service channel is the linear waveform distortion of time components from 0.125 to 1.0 microsecond, that is, time components of the

short-time domain. It is measured at the transmission service channel output terminals.

Long-Time Waveform Distortion - Long-time waveform distortion of a transmission service channel is the damped low-frequency transient resulting from a change in APL that affects the dc component of the signal. It is the linear waveform distortion of time components from 16 milliseconds to tens of seconds, that is, time components of the long-time domain. The distortion is characterized by the peak overshoot and settling time. It is measured at the transmission service channel output terminals.

Insertion Gain and Variation - Insertion gain of a transmission service channel is defined as the difference of a signal's output level compared to its input level. Insertion-gain variation is the change of insertion gain over a specified time interval. It is measured at the transmission service channel output terminals.

Video Signal - Nonlinear Distortions

Luminance Nonlinearity - Luminance nonlinearity of a transmission service channel is the deviation of the luminance signal from proportionality between the amplitude of the small unit step function, as the level of step is shifted from blanking level to white level. It is measured at the transmission service channel output terminals.

Differential Gain - Differential gain of a transmission service channel is the change in amplitude of the subcarrier (chrominance) signal as the luminance signal is varied from blanking to white level. It is expressed as a percentage of the maximum level or in IRE units. It is measured at the transmission service channel output terminals.

Differential Phase - Differential phase of a transmission service channel is the change in phase of the subcarrier (chrominance) signal after it has passed through a transmission service channel as the luminance is varied from blanking level to white level. It is measured at the transmission service channel output terminals.

Chrominance-to-Luminance Intermodulation - Chrominance-to-luminance intermodulation of a transmission service channel is the variation in amplitude of the luminance signal at the transmission service channel output terminals resulting from the superimposition on the input signal of a chrominance signal of specified amplitude.

Chrominance Nonlinear Gain - The nonlinear gain distortion of a transmission service channel is the departure from proportionality in amplitude of the chrominance subcarrier burst packets at the transmission service channel output terminals as the amplitude of the subcarrier is varied from a specified minimum to a specified maximum value at a given luminance level and APL at the transmission service channel input terminals.

Chrominance Nonlinear Phase - The chrominance nonlinear phase distortion of a transmission service channel is the variation of the phase of the chrominance subcarrier at the transmission service channel output terminals as the amplitude of the subcarrier is varied from a specified minimum to a specified maximum value at a given luminance level and APL at the transmission service channel input terminals.

Dynamic Gain of the Picture Signal - Dynamic gain of the picture signal of transmission service channel is the change in insertion gain as measured by the change in the peak-to-peak luminance level resulting from variations in APL.

Dynamic Gain of the Synchronizing Signal - Dynamic gain of the synchronizing signal is a change in transmission service channel gain as measured by the change in the synchronizing pulse peak-to-peak amplitude resulting from variation in APL. It is measured at the transmission service channel output terminals.

Transient Synchronizing Signal Nonlinearity - Transient synchronizing signal nonlinearity of a transmission service channel is the departure from equality in the amplitude of the synchronizing pulse tip to blanking level portion of a composite picture signal when the APL is varied abruptly between high and low values. It is measured at the transmission service channel output terminals.

Video Signal - Interference

Signal-to-Weighted-Random-Noise Ratio (10 kHz - 4.2 MHz) - The signal-to-weighted-random-noise ratio is the ratio of the peak-to-peak luminance signal, blanking to reference white (nominally 0.714 volt = 100 IRE units), to the weighted RMS noise level. The noise referred to is predominantly thermal noise in the 10 kHz - 4.2 MHz range. Synchronizing signals are not included in the signal measurement. It is measured at the transmission service channel output terminals.

Signal-to-Low-Frequency-Noise Ratio (0-10 kHz) - The signal-to-low-frequency-noise ratio of a transmission service channel is the ratio of the peak-to-peak luminance signal, blanking to reference white (nominally, 0.714 volt = 100 IRE units), to the peak-to-peak low-frequency-noise voltage. Low-frequency noise, as used here, includes all frequencies below 10 kHz and generally has its source in power supplies. Synchronizing signals are not included in the signal measurement. It is measured at the transmission service channel output terminals.

Signal-to-Periodic-Noise Ratio (300 Hz - 4.2 MHz) - Signal-to-periodic-noise interference of a transmission service channel is the term applied to an interference that consists of a single frequency or a number of single-frequency components. The signal-to-periodic-noise ratio is the ratio of the peak-to-peak luminance signal, blanking to reference white (nominally 0.714 volts = 100 IRE units), to the peak-to-peak value of the periodic noise. Periodic noise as used

here means any frequency between 300 Hz - 4.2 MHz. It is measured at the transmission service channel output terminals.

Audio Signal

Amplitude Response Versus Frequency - The audio amplitude response versus frequency characteristic of a transmission service channel is the amplitude variation as a function of audio frequency of a sine-wave voltage applied to the transmission service channel audio input terminals and measured at the transmission service channel audio output terminals. The amplitude variation is expressed in dB.

Total Harmonic Distortion plus Noise (4 see/404 Hz/+ 18 dBm) - Total harmonic distortion plus noise (4 seconds/404 Hz/+ 18 dBm) of a transmission service channel is the distortion of a sinusoidal signal after it has passed through a transmission service channel that causes the generation of components harmonically related to the input sinusoid, plus noise produced by the channel.

Signal-to-Noise Ratio - The audio signal-to-noise ratio of a transmission service channel is the ratio of peak operating level to the RMS noise level at the transmission service channel output terminals. Noise is any extraneous output signal in the frequency band from 50 Hz to 15 kHz.

Insertion Gain - The audio signal insertion gain of a transmission service channel is the ratio in dB of the output level of a transmission service channel with respect to its input signal level.

Stereo Gain Difference - A to B Channel - The stereo gain difference (A to B channel) of a stereophonic audio transmission service channel is defined as the difference in dB between the insertion gains of channels A and B at the same frequency.

Stereo Phase Difference - A to B Channel - The stereo phase difference (A to B channel) of stereophonic audio transmission service channels is defined as the difference in phase, expressed in degrees, between the output signals of the two transmission service channels when a signal of some specified frequency is applied simultaneously to the transmitting terminals.

Crosstalk Plus Noise - Crosstalk plus noise of an audio transmission service channel is a term used to describe the unwanted coupling of the signal from one transmission service channel into the noise of the other.

Audio to Video Time Differential - Audio to video time differential of a transmission service channel is the departure from equality in the transmission time of associated audio and video signals.

Requirement Object List

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.

Page 2-2

R3-1 [2] The electrical interface with the LEC for Television Special Access and Local Channel Services provides and 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-STS-000307, Issue 3, January 1992, or later.

Page 3-6

R4-1 [3] The objectives, acceptance limits, and immediate action limits (IALs) are one and the same for TV1 and TV2 service.

Page 4-1

R4-2 [4] There has been some confusion as to the audio power level expected from the customer on the audio channels associated with a television service, as with a 15-kHz audio channel. Stated simply, the interface to the exchange carrier should receive the following power levels:

- +8 vu normal operating level, i. e., recurring peak readings of "0" on a standard volume indicator (vu meter) which is set up such that a 404-Hz sinusoid test tone of +8 dBm drives the meter to its "0" scale position. See below for more details on level measurement.
- +18 dBm, the maximum power on unusual program peaks that are too short to activate the vu meter. (This is basically the RMS power during a full electrical cycle during the program peak; it is not the instantaneous peak power of that cycle, which can be higher. The power measurement in ANSI Standard T1502-1988 helps clarify this point.)
- 0 dBm, the normal test tone at any frequency and the maximum test tone above 404 Hz.
- +8 dBm, the maximum long-term test tone up to 404 Hz.

- + 18 dBm, the maximum short-term test tone at 404 Hz for distortion tests, to be applied for four seconds or less and reapplied only with concurrence of the exchange carrier.

Page 4-7

R4-3 **[5]** The maximum continuous test-tone, power that may be applied to the transmitting POT is as follows:

- +8 dBm0 between 50 Hz and 404 Hz
- 0 dBm0 between > 404 Hz and 15 kHz.

Page 4-7