

## Contents

Generic Requirements Notice Of Disclaimer . . . . .	iii
Preface . . . . .	xi
1. Introduction . . . . .	1-1
1.1 General . . . . .	1-1
1.2 Purpose . . . . .	1-1
1.3 Scope and Applicability of Technical Specifications . . . . .	1-2
1.4 Organization of Document . . . . .	1-4
1.5 Requirements Terminology . . . . .	1-4
1.6 Requirement Labeling Conventions . . . . .	1-5
1.6.1 Numbering of Requirement and Related Objects . . . . .	1-5
2. Service Description . . . . .	2-1
2.1 Brief Description of Services . . . . .	2-1
2.1.1 Service A P 0 . . . . .	2-1
2.1.2 Service A P 1 . . . . .	2-1
2.1.3 Service A P 2 . . . . .	2-1
2.1.4 Service A P 3 . . . . .	2-1
2.1.5 Service A P 4 . . . . .	2-2
2.1.6 Service A P 5 . . . . .	2-2
2.1.7 Service A P C . . . . .	2-2
2.2 Service Configurations . . . . .	2-2
2.3 Optional Features . . . . .	2-2
2.3.1 Gain Conditioning . . . . .	2-2
2.3.2 Central Office Bridging . . . . .	2-2
2.3.3 Stereo-Type Service . . . . .	2-3
2.3.4 Cross-Connection (Patching) . . . . .	2-3
3. Interface Codes and Combinations . . . . .	3-1
3.1 General . . . . .	3-1
3.2 Interface Code Definitions . . . . .	3-1
3.2.1 Code Components . . . . .	3-1
3.2.2 Protocol Code . . . . .	3-3
3.2.3 Protocol Option . . . . .	3-3
3.2.4 Nominal Reference Impedance . . . . .	3-4
3.3 Tabulation of Interface Combinations for Program Audio Services . . . . .	3-4
3.3.1 Interface Combinations . . . . .	3-4
3.3.2 High-Capacity Interfaces . . . . .	3-6
4. Technical Specifications . . . . .	4-1
4.1 General . . . . .	4-1
4.2 Zero Transmission Level Point . . . . .	4-1
4.3 Test Tones and Peak Program Levels . . . . .	4-2
4.4 Maximum Permitted Test-Tone Levels . . . . .	4-2
4.5 Technical Characteristics . . . . .	4-2
4.5.1 Nonlinear Distortion . . . . .	4-2

4.5.2	Noise . . . . .	4-4
4.5.3	Calculating Terminal (System) Equipment SNR, by Number of Bits per Sample . . . . .	4-4
4.5.4	Crosstalk . . . . .	4-5
4.5.5	Longitudinal Balance . . . . .	4-6
4.5.6	Undesired Potentials . . . . .	4-6
4.5.7	Phase Difference . . . . .	4-6
4.6	Illustrative Applications . . . . .	4-6
4.6.1	Services APC, AP0, AP1, AP2, AP3, AP4 and AP5 . . . . .	4-6
4.7	Acceptance Limits . . . . .	4-7
5.	Interface Illustrations . . . . .	5-1
5.1	General . . . . .	5-1
5.2	Interface Illustrations . . . . .	5-2
5.2.1	Interface Type 4AH5.B . . . . .	5-2
5.2.2	Interface Type 4AH6.C . . . . .	5-3
5.2.3	Interface Type 4AH6.D . . . . .	5-4
5.2.4	Interface Type 4DS9.15E . . . . .	5-5
5.2.5	Interface Type 4DS9.15F . . . . .	5-6
5.2.6	Interface Type 4DS9.15G . . . . .	5-7
5.2.7	Interface Type 4DS9.15H . . . . .	5-8
5.2.8	Interface Type 2PG1.1 . . . . .	5-9
5.2.9	Interface Type 2PG1.3 . . . . .	5-10
5.2.10	Interface Type 2PG1.5 . . . . .	5-11
5.2.11	Interface Type 2PG1.8 . . . . .	5-12
5.2.12	Interface Type 2PG1.9 . . . . .	5-13
5.2.13	Interface Types: 4PC1.1 (AP4); 4PC1.3 (AP1); 4PC1.8 (AP3); 4PC1.9 (AP5) . . . . .	5-14
5.2.14	Interface Type 2PG2.1 . . . . .	5-15
5.2.15	Interface Type 2PG2.2 . . . . .	5-16
5.2.16	Interface Type 2PG2.3 . . . . .	5-17
5.2.17	Interface Type 2PG2.5 . . . . .	5-18
5.2.18	Interface Type 2PG2.8 . . . . .	5-19
5.2.19	Interface Type 2PG2-9 . . . . .	5-20
5.2.20	Interface Types: 4PC2.1 (AP4); 4PC2.3 (AP1); 4PC2.8 (AP3); 4PC2.9 (AP5) . . . . .	5-21
5.2.21	Interface Types: 4IS5.R1 (one B channel of 50 Hz to 7500 Hz program audio service); 4IS5.R2 (two B channels providing two 50 Hz to 7500 Hz program audio services) . . . . .	5-22
5.2.22	Interface Types: 4IS5.R3 (two B channels providing one 50 Hz to 15,000 Hz program audio service . . . . .	5-23
5.2.23	Interface Types: 4IS5.R4 (two B channels providing one 20 Hz to 20,000 Hz program audio service) . . . . .	5-24

Appendix A: Use of Figures 4-1 and 4-2 . . . . .	A-1
Appendix B: References . . . . .	B-1
Appendix C: Bibliography . . . . .	C-1
Appendix D: Glossary . . . . .	D-1
Requirement-Object List . . . . .	ROL-1
Requirement-Object Index . . . . .	ROI-1

## List of Figures

Figure 4-1.	Present Harmonic Distortion as a Function of dB Difference Between Fundamental and Harmonic Frequencies . . . . .	4-9
Figure 4-2.	Computation of Harmonic Distortion from RSS Addition of Second and Third Harmonics . . . . .	4-10
Figure 4-3.	Program Audio Service Configurations . . . . .	4-11
Figure 4-4.	Frequency Response Limits - AP2, AP3, AP4 . . . . .	4-12
Figure 4-5.	Phase Difference Between Channels - AP4 with Stereo Conditioning . . . . .	4-13

## List of Tables

Table 3-1.	Total Wires . . . . .	3-1
Table 3-2.	Glossary of Protocol Codes and Selected Options . . . . .	3-2
Table 3-3.	Impedance . . . . .	3-3
Table 3-4.	Standard Interface Combinations . . . . .	3-5
Table 4-1.	SNR - Calculated Values . . . . .	4-5
Table 4-2.	Program Service Acceptance Limits . . . . .	4-7