ISO/IEC 29341-4-11:2008-11 (E)

Information technology_- UPnP Device Architecture_- Part_4-11: Audio Video Device Control Protocol_- Level 2_- Connection Manager Service

CONTENTS

FOREWORD 4

ORIGINAL UPNP DOCUMENTS (informative) 6

1 Overview and Scope 8

1.1 Introduction 8

1.2 Notation 8

1.2.1 Data Types 8

1.2.2 Strings Embedded in Other Strings 9

1.2.3 Extended Backus-Naur Form 9

1.3 Derived Data Types 10

1.3.1 Comma Separated Value (CSV) Lists 10

1.4 Management of XML Namespaces in Standardized DCPs 11

1.4.1 Namespace Prefix Requirements 14

1.4.2 Namespace Names, Namespace Versioning and Schema Versioning 15

1.4.3 Namespace Usage Examples 16

1.5 Vendor-defined Extensions 16

1.6 References 17

2 Service Modeling Definitions 20

2.1 ServiceType 20

2.2 State Variables 20

2.2.1 *SourceProtocolInfo* 21

2.2.2 *SinkProtocolInfo* 21

2.2.3 *CurrentConnectionIDs* 21

2.2.4 *A_ARG_TYPE_ConnectionStatus* 22

2.2.5 *A_ARG_TYPE_ConnectionManager* 22

2.2.6 *A_ARG_TYPE_Direction* 22

2.2.7 *A_ARG_TYPE_ProtocolInfo* 22

2.2.8 *A_ARG_TYPE_ConnectionID* 22

2.2.9 *A_ARG_TYPE_AVTransportID* 22

2.2.10 *A_ARG_TYPE_RcsID* 22

2.3 Eventing and Moderation 23

2.4 Actions 24

2.4.1 *GetProtocolInfo()* 25

2.4.2 *PrepareForConnection()* 25

2.4.3 *ConnectionComplete()* 28

2.4.4 *GetCurrentConnectionIDs()* 29

2.4.5 *GetCurrentConnectionInfo()* 29

2.4.6 Common Error Codes 31

2.5 Theory of Operation 32

2.5.1 Purpose 32

2.5.2 *ProtocolInfo* Concept 32

2.5.3 Typical Control Point Operations 37

2.5.4 Relation to Devices without ConnectionManagers 38

2.5.5 *PrepareForConnection()* and *ConnectionComplete()* 38

3 XML Service Description 42

4 Test 46

Annex A (normative) **Protocol Specifics** **47**
A.1 Application to HTTP Streaming 47
A.1.1 *ProtocolInfo* Definition 47
A.1.2 Implementation of *PrepareForConnection()* 47
A.1.3 Implementation of *ConnectionComplete()* 47
A.1.4 Automatic Connection Cleanup 47
A.2 Application to RTSP/RTP/UDP Streaming 48
A.2.1 *ProtocolInfo* Definition 48
A.2.2 Implementation of *PrepareForConnection()* 48
A.2.3 Implementation of *ConnectionComplete()* 48
A.2.4 Automatic Connection Cleanup 48
A.3 Application to Device-Internal Streaming 49
A.4 Application to IEC61883 Streaming 49
A.4.1 *ProtocolInfo* Definition 49
A.4.2 Implementation of *PrepareForConnection()* 50
A.4.3 Implementation of *ConnectionComplete()* 51
A.4.4 Automatic Connection Cleanup 51
A.5 Application to Vendor-specific Streaming 52

LIST OF TABLES

Table 1-1: EBNF Operators 9
Table 1-2: CSV Examples 11
Table 1-3: Namespace Definitions 13
Table 1-4: Schema-related Information 14
Table 1-5: Default Namespaces for the AV Specifications 15
Table 2-6: State Variables 20
Table 2-7: Event Moderation 23
Table 2-8: Actions 24
Table 2-9: Arguments for *GetProtocolInfo()* 25
Table 2-10: Arguments for *PrepareForConnection()* 26
Table 2-11: Error Codes for *PrepareForConnection()* 27
Table 2-12: Arguments for *ConnectionComplete()* 28
Table 2-13: Error Codes for *ConnectionComplete()* 29
Table 2-14: Arguments for *GetCurrentConnectionIDs()* 29
Table 2-15: Error Codes for *GetCurrentConnectionIDs()* 29
Table 2-16: Arguments for *GetCurrentConnectionInfo()* 30
Table 2-17: Error Codes for *GetCurrentConnectionInfo()* 30
Table 2-18: Common Error Codes 31
Table 2-19: Defined Protocols and their associated *ProtocolInfo* Values 33
Table A-1: <contentFormat> for Protocol IEC61883 50