

Contents

1.	Introduction	1-1
1.1	Terminology	1-2
2.	Testing Environment	2-1
2.1	Testbed Configuration	2-1
2.2	Testing Categories	2-1
2.3	Testing Under Traffic Loads	2-2
3.	Type 1 Interface Testing	3-1
3.1	Signal Transmission Testing	3-1
3.1.1	Power Ringing Timings	3-2
3.1.2	Line DC Voltage Integrity	3-3
3.1.3	Open Switching Interval (OSI) Timings	3-3
3.1.4	Channel Seizure Delay	3-4
3.1.5	End of Data Timing	3-4
3.1.6	FSK Signal Dropout Detection	3-4
3.1.7	FSK Baudrate	3-4
3.1.8	FSK Amplitude	3-4
3.1.9	FSK Frequencies	3-5
3.1.10	FSK Signal Continuous Phase	3-5
3.1.11	FSK Signal Purity	3-5
3.1.12	Clean End of FSK Data Signal	3-5
3.1.13	OSI for Data Transmission Not Associated with Power Ringing	3-5
3.1.14	Off-Hook Condition During Data Transmission Not Associated With Power Ringing	3-5
3.2	Data Link Layer Testing	3-6
3.3	Message Format Testing	3-8
3.2.1	Channel Seizure Signal	3-8
3.2.2	Mark Signal	3-8
3.2.3	Additional Mark Bits Between Words	3-8
3.2.4	Byte Framing and Bit Ordering	3-8
3.2.5	Checksum	3-8
3.2.6	Message Length	3-8
3.3.1	Calling Number Delivery (SDMF)	3-9
3.3.1.1	Message Type Word	3-9
3.3.1.2	Message Words	3-9
3.3.2	Message Waiting Indicator (SDMF)	3-11
3.3.2.1	Message Type Word	3-11
3.3.2.2	Message Words	3-11
3.3.3	Call Setup (CND, CNAM) (MDMF)	3-12
3.3.3.1	Message Type Word	3-12
3.3.3.2	Parameter Type Word(s)	3-12
3.3.3.3	Parameter Length Word(s)	3-12
3.3.3.4	Parameter Type 0x01 (Date/Time) Words	3-12

3.3.4	Message Waiting Notification (MDMF)	3-13
3.3.3.5	Parameter Type 0x02 (Calling Line Identification) Words	3-13
3.3.3.6	Parameter Type 0x04 (Reason for absence of DN) Words	3-13
3.3.3.7	Parameter Type 0x07 (Name) Words	3-13
3.3.3.8	Parameter Type 0x08 (Reason for Absence of Name) Words	3-13
3.3.4.1	Message Type Word	3-13
3.3.4.2	Parameter Type Word	3-13
3.3.4.3	Parameter Length Word	3-14
3.3.4.4	Parameter Type 0x0B (Visual Indicator) Words	3-14
4.	Type 2 Interface Testing	4-1
4.1	Signal Transmission Testing	4-1
4.1.1	Line DC Voltage Integrity	4-3
4.1.2	First OSI Timing	4-4
4.1.3	Silence Before SAS	4-4
4.1.4	SAS Duration	4-4
4.1.5	SAS Amplitude	4-4
4.1.6	SAS Frequency	4-5
4.1.7	Delay Between SAS and CAS	4-5
4.1.8	CAS Duration	4-5
4.1.9	CAS Amplitude	4-5
4.1.10	CAS Frequencies	4-5
4.1.11	CAS Purity	4-5
4.1.12	DTMF ACK Receiver Ready Timing	4-6
4.1.13	DTMF ACK Time-out Timer (t1)	4-6
4.1.14	DTMF A/D ACK Verification	4-6
4.1.15	DTMF Receiver Input Coupling and Impedance	4-6
4.1.16	DTMF Receiver Code Validity Check	4-6
4.1.17	DTMF Receiver Frequency Tolerance	4-6
4.1.18	DTMF Receiver Amplitude Tolerance	4-6
4.1.19	DTMF Receiver Amplitude Twist Tolerance	4-7
4.1.20	DTMF Receiver Duration Tolerance	4-7
4.1.21	DTMF Receiver Tolerance to Signal Echo	4-7
4.1.22	DTMF Receiver Gaussian Noise Tolerance	4-7
4.1.23	DTMF Receiver Impulse Noise Tolerance	4-7
4.1.24	DTMF Receiver Power Line Noise Tolerance	4-7
4.1.25	DTMF Receiver Extraneous Frequencies Tolerance	4-7
4.1.26	DTMF Receiver Digit Simulation by Speech Tolerance	4-7
4.1.27	Begin FSK Transmission Delay	4-8
4.1.28	FSK Signal Dropout Detection	4-8
4.1.29	FSK Baudrate	4-8
4.1.30	FSK Amplitude	4-8
4.1.31	FSK Frequencies	4-8
4.1.32	FSK Signal Continuous Phase	4-8

4.1.33	FSK Signal Purity	4-8
4.1.34	Clean End of FSK Data Signal	4-8
4.1.35	Last OSI Timing	4-9
4.1.36	Far-End Reconnect Timing	4-9
4.1.37	Overall Far-End Disconnect Duration	4-9
4.1.38	Flash/Disconnect Treatment	4-9
4.2	Data Link Layer Testing	4-10
4.2.1	Mark Signal	4-11
4.3	Message Format Testing	4-12
4.2.2	Additional Mark Bits Between Words	4-12
4.2.3	Byte Framing and Bit Ordering	4-12
4.2.4	Checksum	4-12
4.2.5	Message Length	4-12
4.3.1	Message Type Word	4-12
4.3.2	Parameter Type Word(s)	4-12
4.3.3	Parameter Length Word(s)	4-13
4.3.4	Parameter Type 0x01 (Date/Time) Words	4-13
4.3.5	Parameter Type 0x02 (Calling Line Identification) Words	4-13
4.3.6	Parameter Type 0x04 (Reason for absence of DN) Words	4-13
4.3.7	Parameter Type 0x07 (Name) Words	4-13
4.3.8	Parameter Type 0x08 (Reason for Absence of Name) Words	4-13
5.	Type 3 Interface Testing	5-1
5.1	Introduction	5-1
5.1.1	ADSI Overview	5-1
5.1.2	Testing Methodologies	5-2
5.1.3	Testing Apparatus	5-3
5.1.4	ADSI Data Handshake	5-3
5.1.5	Server Loop Loss Compensation	5-4
5.2	Signal Transmission Testing	5-4
5.2.1	Open Switching Interval (OSI) Timings	5-6
5.2.2	CAS Duration	5-6
5.2.3	CAS Amplitude	5-6
5.2.4	CAS Frequencies	5-7
5.2.5	CAS Purity	5-7
5.2.6	DTMF A ACK Verification	5-7
5.2.7	DTMF ACK Receiver Ready Timing	5-7
5.2.8	DTMF ACK Time-out Timer (t1)	5-7
5.2.9	DTMF Receiver Input Coupling and Impedance	5-7
5.2.10	DTMF Receiver Code Validity Check	5-7
5.2.11	DTMF Receiver Frequency Tolerance	5-8
5.2.12	DTMF Receiver Amplitude Tolerance	5-8
5.2.13	DTMF Receiver Amplitude Twist Tolerance Limits	5-8
5.2.14	DTMF Receiver Duration Tolerance	5-8
5.2.15	DTMF Receiver Tolerance to Signal Echo	5-8
5.2.16	DTMF Receiver Gaussian Noise Tolerance	5-8

5.2.17	DTMF Receiver Impulse Noise Tolerance	5-8
5.2.18	DTMF Receiver Power Line Noise Tolerance	5-8
5.2.19	DTMF Receiver Extraneous Frequencies Tolerance	5-9
5.2.20	DTMF Receiver Digit Simulation by Speech Tolerance	5-9
5.2.21	Begin FSK Transmission Delay	5-9
5.2.22	FSK Signal Dropout Detection	5-9
5.2.23	FSK Baudrate	5-9
5.2.24	FSK Amplitude	5-9
5.2.25	FSK Frequencies	5-9
5.2.26	FSK Signal Continuous Phase	5-9
5.2.27	FSK Signal Purity	5-10
5.2.28	Clean End of FSK Data Signal	5-10
5.2.29	Last OSI Timing	5-10
5.2.30	Voice Path Reconnect Timing	5-10
5.2.31	Data ACK Timer	5-10
5.2.32	Timed Switch to Voice Timing and Signaling (Timer t13)	5-11
5.2.33	DTMF Tolerances	5-12
5.2.34	Extended Duration DTMF Reception	5-12
5.2.35	Feature Download Management Timers	5-13
	5.2.35.1 Timer t12 (Response to Download Connect Parameter)	5-13
5.3	Data Link Layer Testing	5-14
	5.2.35.2 Timer t11 (Maximum Delay to Start Download)	5-14
	5.2.35.3 Timer t10 (Maximum Delay Between Data Bursts)	5-14
5.3.1	Mark Signal	5-16
5.3.2	Additional Mark Bits Between Words	5-16
5.3.3	Byte Framing and Bit Ordering	5-16
5.3.4	Checksum	5-16
5.3.5	CRC-16	5-16
5.3.6	Mark Bits Between Data Frames	5-17
5.3.7	Message Length	5-17
5.3.8	Message Numbering	5-17
5.3.9	Response to Data Frame ACKs	5-17
5.4	Message Format Testing	5-19
5.4.1	Server Display Control	5-19
	5.4.1.1 Message Type Word	5-20
	5.4.1.2 Message Number Word	5-20
	5.4.1.3 Parameter Type Word(s)	5-20
	5.4.1.4 Parameter Length Word(s)	5-21
	5.4.1.5 Parameter Order Check	5-21
	5.4.1.6 Parameter 0x80 (Load Soft Key Table) Words	5-22
	5.4.1.7 Parameter 0x81 (Initialize Softkey Table) Words	5-22
	5.4.1.8 Parameter 0x82 (Load Virtual Display) Words	5-23
	5.4.1.9 Parameter 0x83 (Line Control) Words	5-25
	5.4.1.10 Parameter 0x84 (information) Words	5-25
	5.4.1.11 Parameter 0x85 (Disconnect Session) Words	5-26

5.4.1.12	Parameter 0x86 (Switch to Data) Words	5-26
5.4.1.13	Parameter 0x87 (Timed Switch to Voice) Words	5-26
5.4.1.14	Parameter 0x88 (Clear Softkey Table) Words	5-27
5.4.1.15	Parameter 0x89 (Input Control) Words	5-27
5.4.1.16	Parameter 0x8A (Input Format) Words	5-27
5.4.1.17	Parameter 0x8B (Switch to Peripheral) Words	5-28
5.4.1.18	Parameter 0x8C (Move Data) Words	5-29
5.4.1.19	Parameter 0x8D (Load Default Softkey Tuple) Words	5-30
5.4.1.20	Parameter 0x8E (Connect Session) Words	5-30
5.4.1.21	Parameter 0x8F (Clear Typeahead) Words	5-31
5.4.1.22	Parameter 0x90 (Display Call Buffer) Words	5-32
5.4.1.23	Parameter 0x91 (Clear Call Buffer) Words	5-32
5.4.1.24	Parameter 0x92 (Switch to Alternate Character Set) Words	5-32
5.4.1.25	Parameter 0x93 (Switch to Graphics Mode) Words	5-34
5.4.1.26	Parameter 0x94 (Clear the Screen) Words	5-34
5.4.1.27	Parameter 0x95 (Query for Configuration) Words	5-34
5.4.1.28	Parameter 0x96 (Query for CPE-Id) Words	5-35
5.4.2	Feature Download Management	5-36
5.4.2.1	Message Type Word	5-36
5.4.2.2	Message Number Word	5-36
5.4.2.3	Parameter Type Word(s)	5-36
5.4.2.4	Parameter Length Word(s)	5-37
5.4.2.5	Parameter Order Check	5-37
5.4.2.6	Parameter 0x80 (Load CPE Script Softkey Table) Words	5-37
5.4.2.7	Parameter 0x81 (Load Pre-defined Display) Words	5-38
5.4.2.8	Parameter 0x82 (Load Script) Words	5-39
5.4.2.9	Parameter 0x83 (Download Connect) Words	5-40
5.4.2.10	Parameter 0x84 (Download Disconnect) Words	5-41
5.5	ADSI Test Scenarios	5-42
5.5.1	Server Display Control Parameters	5-42
5.5.1.1	Parameter 0x80 (Load Soft Key Table)	5-42
5.5.1.2	Parameter 0x81 (Initialize Softkey Table)	5-43
5.5.1.3	Parameter 0x82 (Load Virtual Display)	5-43
5.5.1.4	Parameter 0x83 (Line Control)	5-45
5.5.1.5	Parameter 0x84 (information)	5-46
5.5.1.6	Parameter 0x85 (Disconnect Session)	5-47
5.5.1.7	Parameter 0x86 (Switch to Data)	5-47
5.5.1.8	Parameter 0x87 (Timed Switch to Voice)	5-47
5.5.1.9	Parameter 0x88 (Clear Softkey Table)	5-49
5.5.1.10	Parameter 0x89 (Input Control)	5-49
5.5.1.11	Parameter 0x8A (input Format)	5-50

5.5.1.12	Parameter 0x8B (Switch to Peripheral)	5-50
5.5.1.13	Parameter 0x8C (Move Data)	5-51
5.5.1.14	Parameter 0x8D (Load Default Softkey Tuple)	5-51
5.5.1.15	Parameter 0x8E (Connect Session)	5-52
5.5.1.16	Parameter 0x8F (Clear Typeahead)	5-53
5.5.1.17	Parameter 0x90 (Display Call Buffer)	5-53
5.5.1.18	Parameter 0x91 (Clear Call Buffer)	5-53
5.5.1.19	Parameter 0x92 (Switch to Alternate Character Set)	5-54
5.5.1.20	Parameter 0x93 (Switch to Graphics Mode)	5-54
5.5.1.21	Parameter 0x94 (Clear the Screen)	5-54
5.5.1.22	Parameter 0x95 (Query for Configuration)	5-55
5.5.1.23	Parameter 0x96 (Query for CPE-Id)	5-55
5.5.2	Feature Download Management Parameters	5-56
5.5.2.1	Parameter 0x80 (Load CPE Script Softkey Table)	5-56
5.5.2.2	Parameter 0x81 (Load Pre-defined Display)	5-57
5.5.2.3	Parameter 0x82 (Load Script)	5-57
5.5.3	Other Tests	5-58
5.5.2.4	Parameter 0x83 (Download Connect)	5-58
5.5.2.5	Parameter 0x84 (Download Disconnect)	5-58
5.5.3.1	Message Numbers	5-58
5.5.3.2	CRC-16 Tests	5-59
Appendix A: FSK Transmission Tests		A-1
Appendix B: CAS Transmission Tests		B-1
Appendix C: Data Link Layer Testing		C-1
Appendix D: Call Setup Message Format Tests		D-1
Appendix E: CAS Handshake Timing Tests		E-1
Appendix F: DTMF Receiver Tolerance Tests		F-1
References		References-1