

TEST SCHEDULE

Clause	Requirement	Result			
		FXO	FXS	Phone	System
Transmission Losses					
2.3.3 FXS -FXO with analogue network Interface					
	FXS to FXO (loss at 1000Hz: 1dB to 5dB, obj 2.5dB)				?(dB)
	FXO to FXS (loss at 1000Hz 1dB to 5dB, obj 2.5dB)				?(dB)
	FXS send loss (towards network) (obj 3dB)		?(dB)		
	FXO send loss (towards network) (obj -0.5dB)	?(dB)			
	Variation of send loss across band (<+/- 0.5dB)				?(graph)
	FXS receive loss (from network) (obj 8.5dB)		?(dB)		
	FXO receive loss (from network) (obj -6dB)	?(dB)			
	Variation of receive loss across band (<+/- 0.5dB)				?(graph)
	* negative losses are gains				
2.3.4 FXS -FXO with digital network Interface					
	FXS to FXO (loss at 1000Hz: 1dB to 5dB, obj 3dB)				?(dB)
	FXO to FXS (loss at 1000Hz 6.5dB to 10.5dB, obj 8.5dB)				?(dB)
	FXS send loss (towards network) (obj 3dB)		?(dB)		
	FXO send loss (towards network) (obj 0dB)	?(dB)			
	Variation of send loss across band (<+/- 0.5dB)				?(graph)
	FXS receive loss (from network) (obj 8.5dB)		?(dB)		
	FXO receive loss (from network) (obj -0dB)	?(dB)			
	Variation of receive loss across band (<+/- 0.5dB)				?(graph)
	* negative losses are gains				
2.3.5 Digital Phone to analogue network interface					
	SLR (Phone to Network) +11 to +2dB (obj +5dB)				?(dB)
	FXO send loss (towards network) (obj -0.5dB)	?(dB)			
	SLR Phone = SLR Phone to network+FXO send loss			?(dB)	
	RLR (network to phone)				?(dB)
	FXO receive loss (from network) (obj -6dB)	?(dB)			
	RLR Phone = RLR network to phone+FXO receive loss			?(dB)	
	* negative losses are gains				
2.3.5 Digital Phone to digital network interface					
	SLR (Phone to Network)				?(dB)
	FXO send loss (towards network) (obj 0dB)	?(dB)			
	SLR Phone = SLR Phone to network+FXO send loss			?(dB)	
	RLR (network to phone)				?(dB)
	FXO receive loss (from network) (obj -0dB)	?(dB)			
	RLR Phone = RLR network to phone+FXO receive loss			?(dB)	
	* negative losses are gains				

2.3.10 Delay	FXO	FXS	Phone	System
Digital phone (acoustic) to Digital Network Interface (ms)	?(ms)		?(ms)	?(ms)
Digital phone (acoustic) to Analogue Network Interface (ms)	?(ms)		?(ms)	?(ms)
Analogue 2-wire port to Digital Network Interface (ms)	?(ms)	?(ms)		?(ms)
Analogue 2-wire port to Analogue Network Interface (ms)	?(ms)	?(ms)		?(ms)
Digital Network Interface to Digital Phone (acoustic) (ms)	?(ms)		?(ms)	?(ms)
Digital Network Interface Analogue 2-wire port (ms)	?(ms)	?(ms)		?(ms)
Analogue Network Interface to Digital Phone (acoustic) (ms)	?(ms)		?(ms)	?(ms)
Analogue Network Interface to Analogue 2-wire port (ms)	?(ms)	?(ms)		?(ms)

2.3.11 Echo	FXO	FXS	Phone	System
if delays are greater than 15 ms, are echo cancellors fitted	?(yes/no)	?(yes/no)	?(yes/no)	

3.1 Electrical parameters Analogue Interface (FXO) Noise & Crosstalk (PTC200 clause 4.3)	FXO	FXS	Phone	System
psophometric noise power to line in onhook state (<-65dBmp)	?(dBmp)		?(dBmp)	?(dBmp)
psophometric noise power to line in off-hook state (<-60dBmp)	?(dBmp)		?(dBmp)	?(dBmp)
One minute mean off-hook noise power above 4kHz (below limits in PTC 200 fig 4.2)	?(graph)		?(graph)	?(graph)
crosstalk isolation for multiline interfaces (>50dB)	?(dB)		?(dB)	?(dB)
Impedance (PTC200 clause 4.5)				
Return loss v BT3 300 to 1000 Hz (100Hz intervals(>10dB)	?(dB)			
Return loss v BT3 1000 to 3400 Hz (200Hz intervals(>12dB)	?(dB)			
Echo Return loss (ITU-T rec G.122)>14dB)	?(dB)			
On-hook impedance (300 to 3400Hz) (>10kohm)	?(kohm)			
Impedance Balance Ratio to earth (PTC200 clause 4.8)				
Impedance Balance Ratio to earth (PTC200 clause 4.8) (200 to 4000Hz)				
On-hook (>40dB)	?(dB)			
Off-hook (>40dB)	?(dB)			
Tests applicable for system dependant phone (tested in conjunction with analogue network interface)	FXO	FXS	Phone	System
Max analogue output from acoustic stimulus (+10dBV) * ref PTC200 clause 4.2(2)	?(dBV)		?(dBV)	
STMR (PTC200 clause 4.11)				
against BT3 (>7dB)	?(dB)		?(dB)	
against 600 ohms	?(dB)		?(dB)	
Stability (PTC200 clause 4.12)				
Handset face down on hard surface with nwk interface terminated in:				
BT3	?(C/DNC)		?(C/DNC)	
270 ohms	?(C/DNC)		?(C/DNC)	
1.6kohm + 510nF	?(C/DNC)		?(C/DNC)	
To be performed with volume control set at maximum volume				

	Acoustic Shock Protection (PTC200 clause 4.13)				
	Sound pressure at handset in response to +24dBV at network interface (Limit < 118dBA)				?(dBa)
	On-hook security (PTC200 clause 4.13)				
	Confirm that it is not possible to have audio path when phone in on-hook condition				?(yes/no)
3.2	Analogue Port (FXS port)	FXO	FXS	Phone	System
	Noise & Crosstalk (PTC200 clause 4.3)				
	psophometric noise power to line in off-hook state (<-60dBmp)				?(dBmp)
	One minute mean off-hook noise power above 4kHz (below limits in PTC 200 fig 4.2)				?Graph (dbm)
	crosstalk isolation for multiline interfaces (>50dB)				?(dB)
	port impedance (PTC200 clause 4.6)				
	Return loss v BT3 300 to 1000 Hz (100Hz intervals(>10dB)				?(table)(dB)
	Return loss v BT3 1000 to 3400 Hz (200Hz intervals(>12dB)				?(table)(dB)
	Echo Return loss (ITU-T rec G.122)>14dB)				?(dB)
	Impedance Balance Ratio to earth (PTC200 clause 4.8) (200 to 4000Hz)				
	On-hook (>40dB)				?(dB)
	Off-hook (>40dB)				?(dB)
	Terminal Balance Return Loss (TBRL)				?(table/graph)
4	Signalling	FXO	FXS	Phone	System
	4.1 Analogue network interface (FXO) (PTC200 clause 5.2)				
	DTMF Frequencies (+/- 1.5% of ITU-T Rec Q.23 values)				?(table)(Hz)
	Power Levels (-4dBm to -13dBm)				?(table)(dBm)
	High Frequency pre-emphasis (1 to 3dB)				?(table)(dB)
	Distortion (below limits in PTC 200 fig 4.2)				?(graph)
	4.2 Analogue Port (FXS) (PTC200 clause 5.3)				
	DTMF Receiver sensitivity (-5dBm to -30dBm)				?(dBm)
	Respond to frequencies (+/- 1.6% of nominal)				?(yes/no)
	Recognition of 55ms tone/55ms space				?(yes/no)
	4.3 Digital Network Interface				
	Call set-up and control as per CTR3/4				CTR3/4 Test Report
	Inband DTMF generated (-6 to -15dBm at 0dBr ref)				?(dBm)
5	d.c. characteristic	FXO	FXS	Phone	System
	(a) Analogue Network Interface (FXO)				
	Is interface polarity independent (PTC200 clause 6.2)				?(yes/no)
	Off-hook d.c. characteristic (PTC200 clause 6.3(1))				?(graph)
	Operation down to 20mA (PTC200 clause 6.3(4))				?(yes/no)
	On-hook line current(PTC200 clause 6.7(2))(<120uA)				?(uA)
	TBR (PTC200 clause 6.7(2)) (300 to 800ms)				?(ms)
	(b) Analogue 2-wire port (FXS)				
	Off-hook d.c. ripple (PTC200 clause 6.10(4)) (<2mV psophometric)				?(mV(p))
	Off-hook recognition (seize line & ring trip)(PTC200 clause 6.10(4)(a)) (15mA for 10ms 1kohm load)				?(yes/no)
	On-hook recognition (PTC200 clause 6.10(4)(b))				

(5mA for 1000ms, 10kohm load) ?(yes/no)
 Max Loop ((PTC200 clause 6.10(7))(ohms) ?(ohms)

(c) **System Fail-safe requirements(PTC200 clause 6.11)**

System to release calls in the event of power failure ?(yes/no)

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Ringing

FXO FXS Phone System

Analogue Network Interface (FXO)

Ringer Sensitivity (RS)(PTC200 clause 7.5.2(1))(RS 0 - 5) ?(RS)
 Minimum operating voltage (PTC200 clause 7.5.2(2))(>30Vp-p) ?(Vp-p)
 Ringer Loading (PTC200 clause 7.5.3)(RL 0 - 5) ?(RL)
 Ringer Number (PTC200 clause 7.6)(RN0.5 -5) ?(RN)

Analogue 2-wire port (FXS)

Electrical safety (PTC200 clause 7.7.5(a)&(b)(AS/NZS 3260) ?(AS/NZS3260)
 Loop ringing (PTC200 clause 7.7.5(c)) ?(yes/no)
 Ringing frequency(PTC200 clause 7.7.5(d)) (24 - 26 Hz) ?(Hz)
 Waveform Crest Factor (PTC200 clause 7.7.5(d))(Vpk/Vrms - 1.2 - 1.6) ?(Crest Factor)
 Max Ringer loading (PTC200 clause 7.7.5(g))(RN) ?(RN)
 Ring-Trip Sensitivity (PTC200 clause 7.7.5(c))
 (No trip with 2 x Rnmax || 10kohm) ?(C/DNC)

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Automatic calling, answering and recording functions (PTC200 section 8)

Test against requirements of PTC 200 Section 8 where applicable
 for voice mail systems, automatic attendants etc ?(C/DNC)

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Functional Tests

FXO FXS Phone System

8.3 Call from Packet Phone to PSTN/ISDN

8.3.1 Call setup (call initiated from packet phone to phone on PSTN)

(a) Dial Tone ?(Hz)
 Alternative pre call supervisory/control ?
 (b) Signalling correct (System calls number intended) ?(yes/no)
 (c) Call Progress Tones
 Ringing Tone (Hz, Cadence) ?(Hz,Cad)
 Busy Tone (Hz, Cadence) ?(Hz,Cad)
 Disconnect Tone (Hz, Cadence) ?(Hz,Cad)
 Number unobtainable Tone (Hz, Cadence) ?(Hz,Cad)
 Recorded Announcements ?(yes/no)
 Other Call progress indicators (e.g. visual etc) ?
 (d) Audio path set-up within 100ms of cessation of ring tone ?(yes/no)
 (e) Call clear-down if outgoing call aborted during set-up (< 5s) ?(s)

8.3.2 Call in progress

(a) Bothway audio maintained ?(yes/no)
 (b) Ability to generate in-band DTMF tones
 (initiated from packet phone, received by PSTN phone) ?(yes/no)
 (c) Switch-hook Flash to Network implemented correctly ?(yes/no)

8.3.3 Call Clear (from packet phone)

FXO clears down from network when phone hangs up(<2 secs) ?(s)
 FXO clears down from network when phone loses power or is disconnected (<15 secs) ?(s)
 FXO clears down from network when
 phone loses power or is disconnected (<mins if user manual note) ?(min, not)

8.3.4 Call Clear (from PSTN phone)

Supervisory (disconnect tone) delivered to?geranted by Packet phone ?(yes/no)
 Other supervisory method ?(yes/no/na)

8.3.5 Incoming Call (from PSTN to Packet phone)

- (a) Incoming call alert within 250ms of network signal to FXO ?(ms)
- (b) Alerting signal to cease and both way audio to be established within 100ms of pickup ?(ms)
- (c) Caller ID if implemented
 - Caller ID implemented? ?(yes/no) ?(yes/no)
 - Correct number displayed ?(yes/no)
 - Dialback (if implemented)
 - Insert zero for national calls ?(yes/no)
 - Either remove area code or insert zero for local calls ?

8.4 Call to PSTN from analogue phone connected to FXS port

FXO FXS Phone System

8.4.1 Call Set-up

- (a) Dial tone presented to phone within 200ms of pickup ?(ms)
- (b) number dialled by phone correctly sent to network at FXO interface ?(yes/no)
- (c) Call Progress Tones
 - Ringing Tone (Hz, Cadence) ?(Hz,Cad)
 - Busy Tone (Hz, Cadence) ?(Hz,Cad)
 - Disconnect Tone (Hz, Cadence) ?(Hz,Cad)
 - Number unobtainable Tone (Hz, Cadence) ?(Hz,Cad)
 - Recorded Announcements ?(yes/no)
- (d) Audio path set-up within 100ms of cessation of ring tone ?(yes/no)
- (e) Call clear-down if outgoing call aborted during set-up (< 5s) ?(s)

8.4.2 Call in progress

- (a) Bothway audio maintained ?(yes/no)
- (b) Ability to generate in-band DTMF tones
 - (i) initiated from phone connected to FXS port, received by PSTN phone ?(yes/no)
 - (ii) initiated from PSTN phone, received by phone connected to FXS port ?(yes/no)
- (c) Switch-hook Flash to Network implemented correctly ?(yes/no)

8.4.3 Call Clear from phone connected to FXS

- (a) FXO clears down from network when phone hangs up (<2 secs) ?(s)
- (b)(i) FXO clears down from network when FXS loses power or is disconnected (<15 secs) ?(s)
- (ii) FXO clears down from network when FXS loses power or is disconnected (<mins if user manual note) ?(min, not)

8.4.4 Call clear from phone connected to PSTN

- Disconnection Tone generated at FXS port ?(yes/no)

8.4.5 Incoming Call (from PSTN to Packet phone)

- (a) Ringing at analogue FXS port within 250ms of network signal to FXO ?(ms)
- (b) Ringing signal to cease and both way audio to be established within 100ms of pickup ?(ms)
- (c) Caller ID if implemented
 - Caller ID implemented? ?(yes/no) ?(yes/no)
 - Correct number displayed on Telepermitted Caller ID unit connected to FXS ?(yes/no)