Engineering Standard

SAES-T-634 29 January, 2003

Telecommunications -
Cable Testing and Acceptance

Saudi Aramco DeskTop Standards

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1 Scope

This Standard prescribes Mandatory Requirements governing the testing and acceptance of telecommunications cable and wire for quality assurance of new installations.

2 Conflicts and Deviations

2.1 Any conflicts between this standard and other applicable Saudi Aramco Engineering Standards (SAESs), Materials System Specifications (SAMSSs), Standard Drawings (SASDs), or industry standards, codes, and forms shall be resolved in writing by the Company or Buyer Representative through the Administrator, IT Planning Division of Saudi Aramco, Dhahran.

2.2 Direct all requests to deviate from this standard in writing to the Company or Buyer Representative, who shall follow internal company procedure SAEP-302 and forward such requests to the Administrator, IT Planning Division of Saudi Aramco, Dhahran.

3 References

All referenced Specifications, Standards and Codes, Forms, Drawings and similar material shall be of the latest issue (including all revisions, addenda and supplements) unless stated otherwise. Applicable references are listed below.

Saudi Aramco References

Saudi Aramco Engineering Procedure

SAEP-302	*Instructions for Obtaining a Waiver of a Mandatory Saudi Aramco Engineering Requirement*

Saudi Aramco Engineering Standard

SAES-T-624	*Telecommunications - OSP Fiber Optics*

4 Definitions and Terms

AML: Actual Measured Loss at 1004 Hz. The measured value of transmission loss, expressed in decibels that include any impairment caused from attenuation, noise and bandwidth restrictions. The actual value is then compared to an objective or calculated value.

Balance: The amount of cancellation of current flowing along tip and ring conductors. Currents that are not cancelled are heard by the subscriber as noise metallic. Balance is in dB and can be calculated by:

Balance = (Noise-to-Ground + 40) - Noise Metallic

or

Balance = Power influence - Circuit Noise (for Wilcom T 136 BGM)

BOC: Build Out Capacitance. This passive device is a capacitor that is bridged between the two conductors of a cable pair and is used to simulate the capacitance of a missing length of cable.

Cable Shield: A metallic layer located under the outer covering of a cable that protects the cable pair. It can be composed of woven, braided, foil wrap, or metal tube that, when bonded and grounded, prevents electromagnetic/electrostatic interference from being induced into the inner wire conductor.

Continuity: The continuity test determines if the tip and ring conductors are continuous.

dBm: dB reference to the milliwatt. dBm is the amount of power relative to that represented by a 1004 Hz signal which will feed one milliwatt of power into a 600 ohm resistive load.

dBrn: A value of decibels above reference noise that begins at a "O" level dBrn - 90 dB. The measured value describes that power level of a noise as seen through a line weighting network of the test set.

dBrnC: dBrn with C message weighting. dBrnC is measure of the interfering effect of noise expressed as the dB above reference noise of -90 dBm at 1004 Hz.

EML: Expected Measured Loss - The EML is the 1004 Hz loss that is expected to be measured between specified test points.

Ground: A conducting connection, whether intentional or accidental, between an electrical circuit or equipment and the earth, or to some conducting body that serves in place of the earth.

Hz: Hertz. Unit of frequency: on cycle per second.

Insertion Loss: The transmission loss caused by inserting a component or network in a circuit. The ratio of power received at a load before insertion to that received at a load after insertion, expressed in decibels.

Insulation Resistance: The insulation resistance test is taken to ensure that the value of resistance each conductor has to all other conductors in a cable and to the cable shield is a minimum of 1000 megohm-miles.

Loaded Loop: A loop into which lumped inductance (loading coil) is introduced at fixed intervals to compensate for the distributed cable capacitance. The addition of loading coils.properly placed, reduces mid-voice band loss, and flattens the frequency response over most of the voice band, but creates a sharp cut-off at the high-frequency band edge.

Loop Resistance: The actual DC resistance of the circuit.

Noise Metallic (Differential Noise): The noise measured across the tip and ring of a circuit; the noise the subscriber hears.

Noise-to-Ground (Common Mode Noise): A measure of the power influence on the cable conductors whose magnitude is a function of the powerline current and voltage present at particular harmonic frequencies. Although the subscriber cannot hear noise-to-ground, its magnitude determines the level of noise metallic that is heard.

Noise to Ground = Power Influence - 40 dB.

PCM: Pulse Code Modulation

POTS: Plain Old Telephone Service.

Power Influence: The characteristics of power circuits and associated apparatus that determine the character and intensity of the fields they produce.

Resistance Unbalance: A measurement of the equality of the dc resistance of the tip-to-ground versus the ring-to-ground with the pair grounded at the far end.

Shield Continuity: Verifies the cable shield continuity for the entire length of cables being tested.

TDR: Time Domain Reflectometer

VOM: Volt-Ohm Meter

5 Design

5.1 Acceptance Testing – Cable Facility

5.1.1 Acceptance tests shall be performed on all new cables, additions or re-arrangements to existing cables when:

5.1.1.1 Adding 305 meters or more of cable

5.1.1.2 Altering the attenuation loss of a voice frequency circuit (loaded or non-loaded) by more than -0.5 dB at 1004 Hz.

5.1.2 For every pair with an irregularity, two or more pairs in the same complement shall be checked.

5.1.2.1 If one or both pairs show irregularities, then all pairs in the complement shall be checked.

5.1.2.2 If 25% or more of the tested pairs show irregularities, then all pairs of the cable shall be tested.

Exception:

If all irregular pairs are confined to one complement, test only the pairs in that complement.

5.2 Responsibilities

5.2.1 Engineering shall be responsible for:

5.2.1.1 Providing cable schematics showing:

- Test points
- Loading points
- Loop loss at 1000 Hz
- Loop resistance

5.2.1.2 Identifying all special testing requirements.

5.2.1.3 Providing loss budget for fiber loops.

5.2.1.4 Providing estimated measured loss for T1 Repeater sections.

5.2.1.5 Providing calculated resistance for T1 Repeater sections.

5.2.2 Outside Plant Construction shall be responsible for:

5.2.2.1 Performing the cable acceptance testing on all cables in accordance with:

- This SAES and any other tests specified on the work order by Engineering.

5.2.2.2 Ensuring that 100% of constructed facilities meet Saudi Aramco mandatory requirements for the type of facility being tested.

5.2.2.3 Testing facility extensions from terminated point to terminated point.

5.2.2.4 Reporting cable troubles identified while testing in existing cables to the Communications Operations and Maintenance Department.

5.2.2.5 Repairing any trouble detected during cable acceptance testing in the new facilities.

5.3 Cable Facility Acceptance Test Requirements

Before a cable is designated for voice frequency (VF) or E1 digital transmission, standard cable acceptance testing procedures shall be completed to verify dc and high frequency acceptability.

Commentary Note:

All cable acceptance tests from the central office must be performed from the cable side of the central office protector to the distribution terminal.

5.3.1 All cable pairs, including POTS, (Loaded & Unloaded), Special Service, and E1 digital on cable, shall meet the minimum acceptance test requirements listed in Table 1.

Table 1

Test	Requirement
Continuity and Polarity	Continuity test shall be made on all pairs for shorts, grounds, and opens. Shorts, grounds, and opens in all new cables shall be corrected; pairs shall be properly grounded. Continuity troubles identified in the existing cables tested shall be reported to the Saudi Aramco Communications Operations and Maintenance Department.
AC Longitudinal Induced Voltage	AC longitudinal voltage shall be a maximum of 10 volt (rms)
Insertion Loss (Frequency Run)	Insertion loss shall be computed and measured over (Frequency Run) the frequency band from 500 Hz to 2500 Hz. The 1 kHz-measured loss shall be within plus pair or minus 0.5 dB of the calculated loss value. A maximum loss of 8.5 dB (at 1 kHz) shall be acceptable.
Insertion Loss (Frequency Run)	For non-loaded cable, the measured loss at 2500 Hz shall be within 6 dB of the measured 1 kHz loss. For H88 loaded cable, the loss over the frequency band from 500 Hz to 2500 Hz shall be flat and be

	within: • Plus or minus 0.5 dB for up to four load points. • Plus or minus 1.5 dB for more than four load points.
Insulation Resistance (For POTS Service, 1 pair shall be tested in 25 pair group. For Special Services and Digital Systems, 100% of pairs shall be tested).	Insulation resistance shall be a minimum of 1000 meg-ohm miles at a potential of 500 volts for one minute measured at increments of 6000 feet or less.
Loop Resistance (100% of pairs shall be tested).	Loop resistance shall measure within plus or minus 10% of the actual calculated value, & all sample pairs shall measure within plus or minus 2% of the average.

Table 1 (Cont'd)

Test	Requirement
Noise Metallic (For POTS Service, 1 pair shall be tested in 25 pair group. For Special Services, 100% of pairs shall be tested).	Circuit noise measurement shall not exceed 20 dBrnC.
Power Influence (For POTS Service, 1 pair shall be tested in 25 pair group. For Special Services, 100% of pairs shall be tested).	Power influence shall not exceed 80 dBrnC.
Resistance Unbalance (100% of vacant pairs shall be tested).	Resistance unbalance of exchange pairs shall not exceed 10 ohms.
Shield Continuity (100% of cable shield shall be tested).	Shield shall be continuous.

5.3.2 All POTs on loaded cable pairs only, shall meet the minimum Structural return loss test requirements listed in Table 2.

Table 2

Test	Requirement
Structural Return Loss (For POTS Service, 1 pair shall be tested in 25 pair group. For Special Services, 100% of pairs shall be tested).	Structural return loss shall be equal to or better than, the minimum values given below between the frequencies of 500 Hz to 2500 Hz. 19 gauge LC 23.0 dB 19 gauge HC 23.4 dB 22 gauge 25.6 dB 24 gauge 26.8 dB 26 gauge 28.1 dB LC = Low Capacitance HC = High Capacitance All facilities assume H-88 loading

5.3.3 All cable pairs on screened and/or non-screened cable used for E1 shall meet the minimum acceptance test requirements listed in Table 3

Table 3

Test	Requirement
Resistance Unbalance (100% of pairs shall be tested)	Resistance unbalance shall not exceed 3 ohms or 0.5% of the loop resistance, whichever is greater.
AC Longitudinal Induced Voltage	AC longitudinal voltage shall be a maximum of 10 volt (rms)
Insertion Loss @ 772 kHz (100% of pairs shall be tested)	Measured loss with an all 1s signal must not exceed the calculated maximum loss by more than 2.5 dB of the loss at 772 kHz for T1. Considering each direction separately, the range of losses among all pairs measured must not exceed 3.5 dB at 772 kHz for T1.
Signal-to-Noise (T1 non-screened cable only)	The noise variance shall represent the difference between the reference and the measured readings using the Sierra 413 or equivalent equipment. Facility e/w Capacity — S/N Margin — Noise Variance 0 — 8 dB minimum — <1 </=49 — 4 dB minimum — <2 50-80 — 4 dB minimum — <2 >/=81 — 4 dB minimum — <2

5.3.4 All fibers shall meet acceptance test requirements listed in Table 4 prior to establishing service.

Table 4

Test	Requirement
End-to-End Loss	100% of fibers in both directions, and 100% of fiber splices and connections; (individual splice loss shall not exceed the following limits, (refer to SAES-T-624). The maximum attenuation of each fiber within a cable, when normalized to a length of 1 km. At wavelength = 1,300 nm, shall be 0.5 dB/km or less, and at wavelength = 1,550 nm, shall be 0.3 dB/km or less. Individual splice insertion loss shall be .05 dB average link splice loss with no single splice loss above 0.1 dB for fusion splices, and 0.1 dB average link splice loss with no single splice loss above 0.2 dB for mechanical splices; connectors shall have insertion losses of 0.5 dB or less).

5.4 Test Equipment

5.4.1 Test equipment listed in Table 5 shall be used for testing POTS and Special Service on loaded and non-loaded cables. Other equivalent test equipment may also be acceptable.

Table 5 - Test equipment used for testing POTS and Special Service on loaded and non-loaded cables

If Testing	Then Use
Continuity and Polarity	• Digital VOM or Multimeter CTC • DAVAR System III/ACTS(R) • CTC RTS 9925(R)
AC Longitudinal Induced Voltage	• Digital VOM or Multimeter CTC
Insertion Loss (Frequency Run)	• CTC DAVAR System III/ACTS • CTC RTS 9925
Insulation Resistance	• Biddle Megger(R) 21259 or 21359
Loop Resistance	• Wheatstone Bridge • CTC DAVAR • System III/ACTS • CTC RTS 9925
Noise Metallic	• CTC DAVAR • System III/ACTS • CTC RTC 9925
Power Influence	• CTC DAVAR • System III/ACTS • CTC RTC 992
Resistance Unbalance	• Wheatstone Bridge • CTC DAVAR • System III/ACTS • CTC RTC 9925
Shield Continuity	• GTE Wilcom(R) • CTC DAVAR • System III/ACTS • CTC RTC 9925
Structural Return Loss (*)	• CTC DAVAR • System III/ACTS • CTC Level Tracer(R) (*) This test is performed on loaded cable only

Biddle Megger is a registered trademark of Biddle Instruments, Blue Bell, PA.

CTC DAVAR System III/ACTS, Level Tracer, and RTS 9925 are registered trademark of Communications Technology Corporation, Dallas, TX.

Wilcom T263 is a registered trademark of Wilcom Products, Inc., Laconia, NH.

5.4.2 Test equipment listed in Table 6 shall be used for testing screened and non-screened cable pairs prior to turn-up. Other equivalent test equipment may also be acceptable.

Table 6 - Test Equipment Used for Testing Screened and Non-Screened Cable Pairs Prior to Turn-Up

If Testing	Then Use
Resistance Unbalance	Wheatstone Bridge CTC DAVAR System III/ACTS CTC RTS 9925
Insertion Loss @772 kHz	Sierra 413
Signal-To-Noise (**)	Sierra 413 (**) This test is performed on non-screened cable that will be used for digital carrier.
AC Longitudinal Induced Voltage	Digital VOM or Multimeter CTC
Insulation Resistance	• Biddle Megger(R) 21259 or 21359
Loop Resistance	• Wheatstone Bridge • CTC DAVAR • System III/ACTS • CTC RTS 9925
Shield Continuity	• GTE Wilcom(R) • CTC DAVAR • System III/ACTS • CTC RTC 9925

5.4.3 Test equipment listed in Table 7 shall be used for testing fiber optic cable. Other equivalent test equipment may also be acceptable.

Table 7 - Acceptable Fiber Optic Cable Test Equipment

If Testing	Then Use
End-to-End Loss	Photodyne 2250XFA Power Meter(R) Laser Precision TD9940, TD9950, & TD9960 OTDR Light Source(R)

Laser Precision TD9940/50/60 OTDR Light Source is a registered trademark of Laser Precision Corporation, Utica, NY.

Photodyne 2250XFA Power Meter is a registered trademark of 3M Photodyne Inc., Camarillo, CA.

Commentary Note:

The Tektronix "OF150 Fiber Optic Time Domain Reflectometer" and the AT&T Optical Loss Test Set. 938A.1 are optical fiber testers presently in use by Saudi Aramco Telecommunications and are also acceptable.

5.5 Testing Procedures

Cable testing shall be done as outlined in Table 8.

Table 8

Test	Activity
Continuity and Polarity	1. Place the ground on the tip side of the pair at the far end. 2. Measure the dc resistance between the tip and ground. 3. Place a ground on the ring side of the pair at the far end. 4. Measure the dc resistance between the ring and ground.
AC Longitudinal Induced Voltage	1. Place the ground on the tip side of the pair at the far end. 2. Measure the AC voltage between the tip and ground. 3. Place a ground on the ring side of the pair at the far end. 4. Measure the AC voltage between the ring and ground.
Resistance Unbalance	1. Clear the ends of all conductors on the far end (opposite the tested end). 2. Remove all protective devices from test pairs. 3. Bunch and ground all conductors on the testing end. 4. Remove one conductor at a time and measure that conductor to the bunched and grounded conductors. 5. After a conductor is tested, return it to the bunched group and select another conductor for testing.
Loop Resistance	1. Place a short on the pair at the far end. 2. Measure the dc resistance across the tip and ring.

Table 8 (Cont'd)

Test	Activity
Resistance Unbalance	1. Ground the ring side of the cable pair at the far end. 2. Read the ring-to-ground value. 3. Ground the tip side of the cable pair at the far end. 4. Read the tip-to-ground value.
Shield Continuity	1. Bunch and ground cable pairs of the cable being tested at the near and far ends. 2. Make a power influence reading. 3. Compare this reading to the power influence reading made during the noise measurements.

Commentary Note:

The remaining tests in this chart must be performed with the opposite end of the cable terminated. If the DAVAR 50 System III is being used, the ACTS/RTU must be connected by using a spare pair and the cable sheath ground.

Test	Activity
Continuity and Polarity	1. Place the ground on the tip side of the pair at the far end. 2. Measure the dc resistance between the tip and ground. 3. Place a ground on the ring side of the pair at the far end. 4. Measure the dc resistance between the ring and ground.
Insertion Loss	1. Send a 0 dBm signal using an approved oscillator at one of the required frequencies. 2. Use a terminated meter to measure loss at the opposite end of the cable pair.
Noise Metallic	1. Terminate one end of the circuit or cable pair with a 600 or 900 ohm in series with a 2.16 micro-farad capacitor. 2. Measure noise at the opposite end of the cable using an approved noise measuring set.
Power Influence	1. Connect cable pair or circuit to the 600 or the 900 ohms termination in series with a 2.16 microfarad capacitor at the central office end. 2. Use an approved noise measuring set to

	make noise measurement from the field.

Test	Activity
Structural Return Loss	1. Build out the far end to a full section 1829 meters with a BOC (build out capacitor). 2. Terminate the far end with a PN (precision network) representing the most dominant gauge or the cable being tested. 3. Terminate the near end with a BOC and PN which match the length and impedance of the near end section 4. Measure the structural return loss with an approved test set.

5.6 Documentation

Copies of the completed Test Record (Exhibits 1, 2 & 3) shall be attached to the MCC and PAC Forms. (This information must be available for quality reviews by Inspection, Communications Engineering, and the Operation and Maintenance Departments).

5.6.1 Exchange Cable

Cable acceptance test shall be recorded according to the instructions listed in Table 9, Exchange Cable Acceptance Test Record (Exhibit 1).

Table 9 - Exchange Cable Acceptance Test Record Instructions

In Term	Specify
A	The exchange location
B	Work Order number
C	The assigned test point number
D	The assigned cable number
E	The assigned cable count
F	Temperature factor, if applicable
G	The assigned "from" location
H	The assigned "to" location
I	Shield continuity test Pass/Fair
J	• Cable pair number • Loop resistance • Resistance unbalance (T-R) • Insulation Resistance: - Conductor (between tip and ring) - Shield(tip to ground and ring to ground)

Table 9 - Exchange Cable Acceptance Test Record Instructions (Cont'd)

In Term	Specify
J	• Structural Return Loss (SRL) • Insertion Loss from 500 Hz to 2500 Hz • Conductor continuity tests, Pass/Fair • Signal-to-Noise margins: - Power Influence, Ng • - Noise Metallic, Nm

5.6.2 Digital Line

After testing each pair between repeater housings, results shall be recorded on the Digital Test Data Acceptance Test Record (Exhibit 2) according to Table 10 instructions.

Table 10 - Digital Test Data Acceptance Test Record Instructions

In Term	Specify
A	Type of PCM Test Set used
B	Work Order number
C	Work Order number (use when different from B)
D	• Cable pair number • Loss at 772 kHz • Loop resistance • Resistance unbalance • Repeater slot number • Signal-to-noise • Shield continuity
E	• Cable number • Repeater housing number • Noise readings
F	• Cable section under test • Test rules of loaded pairs
G	• Transmit direction • Tester's names

5.6.3 Optical Fiber Cable

5.6.3.1 After each fiber is tested in one direction (Office A to Office B or host-remote link), loss measurements shall be documented

on the Optical Fiber Cable Acceptance Test Record (Exhibit 3). Upon test completion, transmitter and receiver shall be reversed, and test shall be repeated in the other direction (Office B to Office A or host-remote link).

Commentary Note:

The transmitter is located in Office B, the receiver is located in Office A.

5.6.3.2 Optical fiber cable acceptance test shall be recorded on the Optical Fiber Cable Acceptance Test Record (Exhibit 3) according to Table 11 instructions.

Table 11 - Optical Fiber Cable Acceptance Test Record Instructions

In Term	Specify
A	End-to-end test or Splice Loss Data
B	The assigned span number designation
C	The assigned cable/trunk number
D	The assigned cable count
E	The type of fiber, i.e., multimode or singlemode
F	The designed wavelength, e.g., 1310 or 1550 nm
G	The calculated allowable loss
H	Central Office A
I	Central Office B
J	Fiber color, Buffer tube color

6 Installation

Cable installation shall be in accordance with other SAES's. Refer to Paragraph 3, Applicable Codes and Standards above.

7 Testing and Inspection

The testing and acceptance of new copper conductor and fiber optic telecommunication cables shall be done in accordance with this standard. The Inspection Department shall be notified prior to the testing of copper conductor or fiber optic telecommunication cables.

Revision Summary

29 January, 2003 Revised the "Next Planned Update". Reaffirmed the contents of the document, and reissued with minor changes.

Exhibit 1 – Exchange Cable Acceptance Test Record

Exchange:				Date:										Page: of					
Street or Road Name:		Work Order No.:		Test Point:		Temperature:		**Cable No.:**						**Cable Count:**					
From:				To:										**Shield Continuity** Pass/Fail-P/F:					
Line No.:	Cable **Pair No.**	**Loop Res.** in Ohms (Must be within 10% of calcu. and 2 % of Avg.)	Res. **Unba** (T to R Max. 10 Ohms for POTS & 3 Ohms for E1)	Cond. **Cont. Test:** (no shorts, opens, grnd's, or rever-sals) P/F	Insulation **Resistance**: (Minimum of 1,000 Megohm Per Mile) (Measured in increments of 6,000 feet or less) (For POTS, 1 pair per 25 pair Complement must be measured) T to R	T to G	R to G	**Insertion Loss:** (Maximum of 8.5 dB @ 1 kHz) (Measured 1 kHz +/- .5 dB of Calc.) (NL measured 2.5 kHz loss must be within 6 dB of measured 1 kHz loss) (For H88 - up to 4 Ld Pts - 500-2500 Hz. shall be flat, within .5 dB & for more than 4 Ld Pts within 1.5 dB) 500 Hz 0.8	1,000 Hz 1.1	1500 Hz 1.3	2000 Hz 1.5	2500 Hz 1.6	**Noise:** dBrnc (For POTS, 1 pr. per 25 pair complement must be measured) Power Infl. Ng Max. 80dBrnc	Metallic Nm Max. 20dBrnc	AC Longi-tudinal **Induc-ed Volts** (Max. 10 volts rms) T & R	**SRL:** (Ld'd Cable Only) (22 = 25.6; 24 = 26.8; 26 = 28.1 min.)	**Load Coil Spacing** (Load Coil spacing must be within 2 % of std. & avg. & avg. dev. .5% of avg.) Note: As-Built Ldng. Chart.
Test/per 25 Complement		25	25	25	For POTS = 1; For Digital = 25			For POTS = 1; For Digital = 25					For POTS = 1; For Digital = 25			25	1 Ld. Avg. Dev.
1																		
2																		
3																		
4																		
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24																		
25																		
Avg. Res. =		< (Avg. Measured Loop Resistance)			(Show		< 1 kHz Calculated Loss)											
Calc. Res. =		< (Calculated Loop Resistance)			Temperature at which measurements were made =													

Notes: 1- For loaded cables to be used for Special Svcs or Digital Systems, do Insertion Loss test @ 772 kHz and Signal-to-Noise test, also.
2- For every pair with irregularity, 2 or more pairs in same complement must be tested. If bad, all pairs in complement shall be tested.
3- If 25% or more of tested pairs show irregularities, then all pairs of the cable shall be tested.

Tested by [*Company Name*] & [Individual Tester Name(s) & Signature(s)]:

Exhibit 2 – Digital Test Data Acceptance Test Record

DIGITAL TEST DATA ACCEPTANCE TEST RECORDS Page ___ of ___

Date: _____

☐ (A) (A) ☐

W. O. # _____ (B) W. O. # _____ (C)

CA PR NO	LOSS dB @772 kHz	LOOP RES	VARLEY (RES UNBAL)	SIGN TO NOS	SHLD CONT.		REPT. SLOTS	SIDE 2						
					Y	N		CA PR No.	LOSS dB	LOOP RES.	VARLEY (RES UNBAL)	SIGN TO NOS	SHLD CONT. Y	SHLD CONT. N
(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

(E) (E) (E)

CABLE NO. _____ RPTR HOUSING # _____ NOISE METALLIC _____ dBrnc

NOISE GRND _____ dBrnc

(F)

CA SEC. BETWEEN _____ AND _____

ORDER WIRE PR. _____ - LOOP _____ - VARLEY _____

FAULT PR. _____ - LOOP _____ - VARLEY _____

MEG. TEST OK? YES _____ NO _____

(G)

SIDE ONE TRANSMITS FROM _____ TO _____

(G)

TESTED BY: _____ AND: _____

Exhibit 3 – Optical Fiber Cable Acceptance Test Record

OPTICAL FIBER CABLE ACCEPTANCE TEST RECORDS

Page _____ of _____

Date: _____

(A) Check One Box: ☐ A. End-to-End Fiber Loss Data ☐ B. Splice Loss Data

SPAN NUMBER	CABLE NUMBER	CABLE COUNT
_____ (B)	_____ (C)	_____ (D)

FIBER TYPE: (E)	WAVELENGTH (nm)	MAX. ALLOWABLE LOSS: (dB)
☐ A. Single Mode ☐ B. Multimode	_____ (F)	_____ (G)

A	OFFICE A	OPERATOR'S NAME	OFFICE B	OPERATOR'S NAME
	_____ (H)	_____	_____ (I)	_____

B	SPLICE LOCATION	TYPE TEST SET USED	DISTANCE TO SPLICE
	_____	_____	_____
	TYPE OF TEST EQPT. USED	TEST SET LOCATION	TEST SET OPERATOR'S NAME:
	_____	_____	_____

FIBER NO.	COLOR (J)		FINAL MEASURED LOSS (dB)		FIBER NO.	COLOR (J)		FINAL MEASURED LOSS (dB)		FIBER NO.	COLOR (J)		FINAL MEASURED LOSS (dB)	
	BUFFER	FIBER	A - B	B - A		BUFFER	FIBER	A - B	B - A		BUFFER	FIBER	A - B	B - A
1					13					25				
2					14					26				
3					15					27				
4					16					28				
5					17					29				
6					18					30				
7					19					31				
8					20					32				
9					21					33				
10					22					34				
11					23					35				
12					24					36				

Remarks: _____

This form to be completed by Loss Test Operator at receiving location (for end-to-end loss)