

FIRST AMENDMENT
to
Comcast Enterprise Dark Fiber Lease Agreement No. VA-KTayl-030422-KA01

This First Amendment (“Amendment”) is concurrently entered into on March 4th, 2022 (“Effective Date”) in conjunction with the Comcast Enterprise Dark Fiber Lease Agreement No. VA-KTayl-030422-KA01 (“Agreement”) by and between Comcast Cable Communications Management, LLC (“Comcast”) and City of Alexandria (“Customer”), individually referred to herein as “Party” and jointly referred to as “Parties”. Capitalized terms used and not defined in this Amendment have the respective meanings assigned to them in the Agreement.

Whereas, the Parties desire to amend the Agreement by this writing to reflect the amended or additional terms and conditions to which the Parties have agreed.

Now, therefore, in consideration of the mutual covenants, promises, and consideration set forth in this Amendment, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. The following language is hereby added to the Comcast Enterprise Dark Fiber Lease Agreement and General Terms and Conditions (“General Terms and Conditions”) and shall read as follows:

Section 28 – Business Downturn. Customer may, for any reason, terminate its use of the Facilities serving any Building or Buildings ordered pursuant to Sales Order No. VA-2230010-thill-18796469 (ordered under Comcast Enterprise Dark Fiber Lease Agreement No. VA-KTayl-100521-KA01; MSA ID VA-2230010-thill), without incurring Termination Charges for such terminations, upon at least thirty (30) days’ written notice to Company provided that Customer continues to maintain a minimum of fifty (50) active Service Locations throughout the term of this Agreement. Effective upon the date specified in such notice, Customer shall (1) no longer be liable for payment of the MRC for any such Building, and shall (2) no longer have the right to transmit signals over the Facilities serving any such Building. The exercise of Customer’s rights under this paragraph shall not affect any other rights of either party under this Agreement with respect to any other Facilities or Buildings, and this Agreement shall remain in full force and effect with respect to such Facilities and Buildings. Notwithstanding anything herein to the contrary, this provision does not apply to new Facilities built after the Effective Date or Services ordered under any Sales Order other than Sales Order No. VA-2230010-thill-18796469. Notwithstanding the foregoing, at any time after the fifth anniversary of the Effective Date, the Customer may terminate this Agreement in its entirety, without cause, upon one hundred eighty (180) days’ prior written notice to Company.

2. The following language is hereby added to the Comcast Enterprise Dark Fiber Lease Agreement and General Terms and Conditions and shall read as follows:

Section 29 – Maintenance and Repair.

1. REPAIR & MAINTENANCE:

In the event of a Facilities failure, Customer will notify Company at 800-741-4141. Company’s dispatch will contact the Company manager and inform him/her of the situation. Company will make reasonable efforts to contact Customer within 30 minutes. The Company manager will contact appropriate maintenance personnel and implement a detailed plan for restoration.

1.A Demarcation Point

It is understood, Comcast’s responsibilities for light levels, maintenance and repair will be up to and including the term shelf (demarcation point) at each customer Facility. Any modifications to the network by the Customer will be

done past the demarcation point, on the Customer's side of the demarcation point. As-built maps will show demarcation points at each Facility (GIS located and identified in maps).

2. INTERRUPTION OBLIGATIONS:

Company shall provide maintenance and repairs in accordance with the Facilities Response Times set forth below. In the event of a disruption or trouble with respect to any portion of the Facilities, Company shall respond to the disruption or trouble within the time frames set forth below (the "Dispatch Period") and remedy the disruption or trouble as soon as reasonably practicable. Company shall notify Customer within the Dispatch Period that Company has dispatched its personnel or contractors to effect restoration and repair and shall provide Customer with updates concerning the status of restoration at reasonable intervals. If Company has not provided such confirmation to Customer within the Dispatch Period or is not making reasonable efforts to remedy the disruption or trouble on a timely basis, Customer shall have the right, after the expiration of the Dispatch Period, to respond to or to participate in the resolution of the trouble. Company and Customer shall reasonably cooperate in the development of procedures governing repair and restoration procedures while Customer is on the premises of Company. The Company will make every reasonable effort to contact the customer with 24 hours advanced notice of any maintenance or changes in splice enclosures which could result in a service disruption and are occupied by Customer. Account updates including maintenance windows will be communicated via the email address on file for the account

Severity Level	Network Condition	Response Time	Commitment
CRITICAL	Network is down. No workaround is available.	Response = 2 hour	Company and Customer work to resolve situation 7x24.
HIGH	Network functionality is severely limited. No workaround is available.	Response = 4 hours	Company and Customer work to resolve situation 7x24.
MEDIUM	Limited functionality. Workaround is available.	Response = 12 hours	Company and Customer work to resolve situation during named business hours.
LOW	General questions, system enhancements, and/or documentation issues in the ordinary course of business.	Response = 72 hours	Company and Customer work to resolve questions during normal business hours.

For severity level problems of high or critical nature, the following escalation procedure will be followed:

1- 2 Hours	Company System Engineer or equivalent will be notified and will contact Customer.
2-4 Hours	Company Director or equivalent will be notified.

3. MAINTENANCE:

All construction and maintenance to be performed by Comcast shall be performed in accordance with Exhibit A to the First Amendment of this Agreement.

Company shall provide Customer with as-built maps of the Facilities no later than thirty (30) days after the Service Date. As-built maps will be from “meet-me”/splice point to the demarcation point of each Facility. As-built maps will be provided via PDF and KMZ. Updated As-built maps will be provided with any Move/Add/Changes/Disconnects of sites/service changes, annually, at the end of the year..

3. In the event of an explicit conflict between this Amendment and the Agreement, the terms and conditions of this Amendment shall take precedence in the interpretation of the explicit matter in question.
4. Except as expressly modified by this Amendment, all other terms and conditions set forth in the Agreement shall remain in full force and effect and are hereby ratified and confirmed by the Parties.

IN WITNESS WHEREOF, the Parties hereto have executed this Amendment as of the day and year written below and the persons signing covenant and warrant that they are duly authorized to sign for and on behalf of the respective Parties.

City of Alexandria

Comcast Cable Communications Management, LLC

Signature:		Signature:	
Printed Name:		Printed Name:	
Title:		Title:	
Date:		Date:	

EXHIBIT A

Dark Fiber Optic Cable Testing Acceptance Standards

(a) Introduction

This document provides a test plan to determine acceptable optical performance of the Construction Fibers. This test procedure is designed to ensure that the fiber optic plant meets general industry standards, and is suitable to support connectivity to a range of potential dark fiber interface equipment. Testing shall be performed after construction is completed for each of the agreed upon sites. For each site, each link will be tested for continuity and to ensure that there are no unacceptable anomalies in the fiber optic cable. An optical time-domain reflectometer (“OTDR”) shall be used to measure and document splice and connector locations, and an optical power meter test set shall be used to determine end-to-end optical losses and fiber continuity.

1. Testing Criteria

1. The test must be successfully completed and may be conducted in the presence of CUSTOMER's designated observer. The test shall be deemed successfully completed if: (1) maximum fiber losses do not exceed 0.34 dB/km at 1310 nm, (2) maximum fiber losses do not exceed 0.22 dB/km at 1550 nm, (3) individual splice losses do not exceed 0.3 dB, and (4) maximum mated connector losses do not exceed 0.75 dB. These standards are based on the Telecommunications Industry Association (TIA) and the Electronic Industries Alliance (EIA) Optical Fiber Cabling Components Standard (EIA/TIA 568-B.3) for outside plant.
2. Testing will be performed by designated cable operator personnel, and may be observed by designated representatives of the Customer personnel may request and perform additional testing.

(b) OTDR Testing Procedure

An OTDR shall be used to measure and document splice losses and connector losses. To correctly identify abnormalities at a short range, a 100-meter or longer launch cable must be used between the OTDR and the fiber under test. This launch cable should be the same used for all OTDR tests for all fibers and sites. Bi-directional traces shall be acquired for each fiber. If the connection of the launch cable to the patch panel requires optimization by the operator, sampling acquisition will commence upon completion of the optimization.

Each fiber will be identified, and the results of the test for each fiber will be recorded as indicated below in the section “Test Data File Names.” The test will be repeated for each of the fibers linking a particular site. All tests will be made at 1310 nm. and 1550nm.

1. OTDR Settings

Settings on the OTDR should reflect the following:

- The Refractive Index shall be set for the actual fiber utilized (commonly used Corning SMF-28 single mode fiber has a refractive index of 1.4677 at 1310 nm).
- Pulse width of no greater than 100 ns (10m) for all fiber lengths.
- Scattering coefficient specified by the fiber manufacturer for each wavelength tested.
- A minimum of 10,000 sampling acquisitions (Averages).

- Maximum range set to no more than 10 km for all fiber length less than 10 km; Maximum range set to no more than 25 km for fiber lengths greater than 10 km.
- Event threshold: 0.05 dB

2. Test Data File Names

A uniform file-naming scheme for recorded data should be used, complying with the following conventions:

Fiber Source and Destination	Naming Scheme
CUSTOMER Data center to (point “a”)	“ a” link
CUSTOMER Data center to (point “b”)	“ b” link
CUSTOMER Data center to (point “n”)	“ n” link

3. Test Documentation

Installed optical fiber OTDR test documentation will include:

- Total fiber length (in km);
- Individual fiber traces for complete fiber length;
- Losses of individual splices and connectors;
- Losses of other anomalies;
- Wavelength tested and measurement directions;
- Manufacturer, model and serial number of the test equipment;
- Most recent calibration date of the test equipment;
- Name, signature, and company of the engineer performing the tests.

All data collected at each location during the tests will be recorded at the time of the tests using electronic means.

(c) Optical Power Meter Test Procedure

Optical power meter measurements shall typically be made at the same time as the OTDR tests to determine overall fiber loss and to ensure that fibers have appropriate end-to-end continuity (fibers not crossed).

1. Calibration Procedure

Calibration readings should be taken at the beginning and end of a testing day.

1. Power on both fiber optic power meter and laser light source.
2. Allow each instrument a warm-up period as specified by manufacturer documentation.
3. Clean all connectors, in-line adapters, and the source and meter connections with alcohol, lint-free wipes, and compressed air.

4. Connect a jumper to the light source, and a second jumper to the meter. Connect the jumpers using a bulkhead.
5. Ensure that the wavelength setting on the light source and the power meter is 1310nm.
6. Set the power meter to record absolute (ABS) readings.
7. To ensure that the jumpers are functional and that a proper connection has been established, observe the power reference reading on the meter's main display.
8. Record the measurement on the display, ensuring that the meter is set to display absolute measurements (ABS).
9. Change the wavelength setting on the light source and the power meter to 1550 nm
10. Repeat steps 6, 7, and 8.
11. Power down the light source and the power meter. Disconnect the light source jumper at the bulkhead ONLY. Cap the free connectors on both jumpers.

2. Test Procedure

1. Take the meter to the test site. The jumper cable should remain connected to the meter for the duration of the testing until a post-calibration measurement is performed.
2. For all fibers and sites, the fiber jumpers for both the power meter and the light source should be the same set for all tests.
3. Clean the connectors on both jumpers and both fiber termination points with alcohol, lint-free wipes, and compressed air. This must be done before testing each fiber.
4. Connect the free end of the jumper connected to the light source to the fiber under test.
5. Connect the free end of the jumper connected to the power meter to the fiber under test.
6. Power on both the meter and light source, and allow a warm up period as recommended by manufacturer documentation.
7. Ensure that both the power meter and light source are set to 1310 nm. Relative measurements may be recorded if the power meter is selectable between absolute and relative measurements.
8. Observe the measurement on the main display of the power meter. Record the value shown after the reading stabilizes.
9. If inconsistent/erroneous readings are observed, re-clean the jumpers and fiber termination points and test again before recording final loss value.
10. Change both the power meter and light source to 1550 nm. and repeat steps 8 and 9. Relative measurements may be recorded if the power meter is selectable between absolute and relative measurements

11. Disconnect the jumpers from the fiber under test.
12. To test additional fibers, be sure to clean each connector and termination point with both alcohol and compressed air. This should be done before testing all fibers.
13. Connect the jumpers to the ends of the next fiber to be tested and observe the measurement on the main display.
14. The meter and light source should only be powered off when traveling to a new test site. Follow steps 1-13 at each new site.
15. Recalibrate the light source and meter after each day's testing is completed, following the calibration procedure.