ii) FEEDER CABLE

Q. What utilization rates were used for the feeder cable components in the cost studies?

A. For copper feeder cables, a 55.2 percent utilization rate was used. For fiber cables, a 60 percent utilization rate was used.

Q. Why are these utilization factors appropriate for use in Verizon MA's cost studies?

A. The outside plant network is not static; rather, it is a dynamic phenomenon. Service connections and disconnections occur during every working day. Also, additional feeder facilities are continually being constructed. On the granular level (*i.e.*, individual distribution areas and feeder routes), the actual fill levels are changing with every service order. There will be some routes in which a relief job has just been completed. These routes will have significantly lower utilization levels. On a macroscopic level (i.e., the overall outside plant network), the overall fill level is relatively constant.

Looking at the network as an overall entity, Verizon tends to add pairs to the network at approximately the same rate that they are being used. This is not coincidence; rather, it is by design to ensure that a balance is maintained between cost and service demands.

Therefore, the utilization factors used in Verizon MA's cost studies, which are based on an examination of actual fill levels, represent a true and stable picture of the overall forward-looking network fill.

iii) RT ELECTRONICS

Q. What utilization factor is appropriate for the RT electronics component of the loop.

A. A utilization factor of 80 percent was used for plug-ins at the Remote Terminal. Unlike other components of the loop plant, which can take a number of months to design, order, and install, the installation interval for plug-ins is shorter. However, if Verizon MA runs out of a particular type of plug-in needed to meet a service order, at a particular RT location, then a technician must be dispatched to install each plug-in. Consequently, plug-ins are usually installed in a remote terminal to accommodate a projected demand and estimated churn. This amount of spare plug-ins minimizes the number of times that technicians must be dispatched for each individual service request, therefore reducing the cost to provide individual service requests. This practice strikes a balance between the cost of individual dispatches and the cost to provide spare plug-ins in advance of their need. Just as with cable, at any point in time, there will be remote

terminals that have just received additional spare plug-ins; there will be remote terminals that are in need of additional plug-ins because they will soon exhaust the spare plug-ins; and there will be remote terminals at various levels between these two points.

c) Determining Loop Investments: In General

Q. What investments are included in the loop cost studies?

A. Loop investments include:

- Copper feeder, sub-feeder, and distribution cable.
- Fiber optic feeder cable.
- Remote terminal equipment.
- Cross-boxes (SAIs/FDIs) and distribution terminals.
- Central office DLC termination electronics.
- DSX-1s and (where utilized in connection with universal interfaces) MDFs.
- NIDs.[16] (For DS1 loops, a NID with additional functionality, sometimes referred to as a "smart jack," is required at the end user premises to support the isolation and testing and troubles reported by a CLEC to Verizon MA. The DS1 NID is activated remotely by a digital code that is sent during installation and maintenance activities. The code activates a loopback relay that breaks the DS1 circuit to the end user and closes a path

[16] Although the NID is available as a separate unbundled network element — see below — it is also a component of the loop element.

between the network transmit and receive pair. The NID allows the tester to confirm the integrity and performance of the DS1 loop without having to dispatch a technician to the site, and represents the most efficient means currently available for carrying out this testing function.)

- Loop "structure" (*i.e.*, poles, conduits, and other supporting facilities).

Q. How were the forward-looking investments determined for these assets?

A. Material prices for electronic equipment and cables reflect the latest negotiated contract prices Verizon MA has with the manufacturers of the circuit equipment and cable facilities, including applicable vendor discounts. Fiber cable, copper cable, SAI, service wire, distribution terminals, poles, and installation and engineering costs were obtained from the ECRIS system.

Q. What is ECRIS?

A. ECRIS is a system used by the Company's OSP engineers to automate the costing, scheduling, and tracking of OSP work. ECRIS permits engineers to build complex OSP jobs from elemental work operations. ECRIS calculates the cost of performing a work operation ("WKOP"), based on specific information about the WKOP provided by the user. Using ECRIS, the Company determines the WKOPs for placing and splicing cables of various types, sizes, and lengths

1 throughout the state. The total costs of these work operations were
2 divided by the lengths of cable placed to obtain the installed costs per
3 foot used by the loop cost model. A similar methodology was used
4 for cross-boxes, terminals, and poles. In this way, installed unit costs
5 were developed by region of the state and density zone.

6 Q. Were investment loadings applied to the loop investments?

7 A. In general, no. Investment data derived from ECRIS already
8 incorporate the costs of engineering and installation. And, loops
9 neither utilize central office power nor are housed in central office
10 buildings, so the power and L&B factors are irrelevant. The only
11 exception to this is certain COT and RT investments, to which L&B
12 and power factors were applied.

13 Q. How was investment in loop structure addressed in the cost studies?

14 A. Structure investment (*i.e.*, the investment in poles, conduit, and other
15 structure support facilities) was assigned directly to the loop, along
16 with the investment in loop cable and electronics, in accordance with
17 ¶ 682 of the *Local Competition Order.*[17]

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[17] "Directly attributable forward-looking costs include the incremental costs of facilities and operations dedicated to that element. Such costs typically include investment costs and

(Continued . . .)

Q. In view of the fact that cables used for the loop and interoffice transport elements may be supported by the same structure, what measures were taken to prevent double-recovery of structure investment?

A. Structure costs were computed on a per-pair foot or per-strand foot basis and the resulting factors were multiplied by the number of pair/strand-feet of cable. This approach appropriately allocates total structure cost to the loop and transport elements based on the number of pair-feet of cable supported for each element.

Q. What measures were taken to prevent over-recovery of the cost of structure that is shared by Verizon MA and other utilities?

A. In determining structure investment, the Company's study took account of the fact that some poles are jointly owned with other utility companies. Only that portion of the structure investment owned by Verizon MA was considered in the study. Moreover, any revenues

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(Footnote continued)

expenses related to primary plant used to provide that element."

1 received by Verizon MA for pole attachments and conduit rentals
2 were offset against the ACFs for pole and conduit maintenance.

3 ***d) The Feeder Route Analysis***

4 Q. How did the Company determine the characteristics of forward-
5 looking loops for purposes of its cost studies?

6 A. The Company utilized the Loop Cost Analysis Model ("LCAM") to
7 develop the investments and costs associated with the local loop,
8 which is discussed below. However, LCAM derives its loop plant
9 characteristics from a survey of feeder route data conducted by
10 Verizon MA's engineers.

11 Q. Were all Massachusetts COs included in the engineering survey?

12 A. No. All COs with 25,000 or more assigned lines were included in the
13 engineering survey. COs with fewer than 25,000 assigned lines were
14 divided into 2 groups. Group 1 consists of COs with 5,000 – 24,999
15 assigned lines. Group 2 consists of COs with fewer than 5,000
16 assigned lines. From each group, a random sample of COs was
17 selected for inclusion in the engineering survey.

18 Q. How many COs were sampled in each of the groups?

19 A. From Group 1, a random sample of 50 COs was selected from a
20 universe of 139 COs. From Group 2, a random sample of 23 COs

was selected from a universe of 67.

Q. Are these samples statistically valid?

A. Yes. The samples were taken in accordance with standard statistical practice. The samples are quite large relative to their universes. The Group 1 and 2 samples represent 36 percent and 34 percent of their universes, respectively.

Q. How do the Group 1 and Group 2 COs relate to the four density zones?

A. The Group 1 and Group 2 COs are distributed throughout the Urban, Suburban, and Rural density zones.

Q. Were forward-looking loop costs developed for all COs included in the engineering survey?

A. Yes. LCAM developed forward-looking loop costs for all surveyed COs.

Q. How were the loop costs for the COs used to develop loop costs for the density zones?

A. For each of the four density zones, the forward-looking link cost is calculated as a working access line weighted average of the CO link costs.

e) LCAM

Q. Please describe LCAM.

A. LCAM is a client-server system using Visual Basic and Oracle Structured Query Language ("SQL"). It has been designed to calculate costs at the wire center basis. The system has three modules: Plant Characteristics, Electronics and Loop Study.

The **Plant Characteristics** module is derived from a recently conducted engineering survey for Massachusetts. Physical characteristics of the Outside Plant Network were obtained from the respective engineering groups for each geographic area. These areas are identified as Carrier Serving Areas ("CSAs"). A mechanized report of actual assigned circuits in each CSA was obtained from Loop Engineering Assignment Data ("LEAD"). The Plant Characteristics module computes the feeder, sub-feeder and distribution length, structure and size for each CSA. The investment per pair foot is derived from the cable sizes and investment data derived from ECRIS. These results are weighted by working lines in the selected services, and are summarized by wire center. The **Electronics** module analyzes the total working lines by Distribution Area ("DA") or CSA to identify the appropriate size and investment for DLC. From these details, a weighted average investment is determined for

each wire center. The **Loop Study** module reads the summarized results of the Plant Characteristics and Electronics studies and various other factors. These values are used to compute loop costs for the available architectures and weight them to produce a composite loop cost. Loop costs were developed using forward looking economic assumptions appropriate for the loop network. Consistent with forward-looking engineering estimates, the loops reflect copper or fiber optic feeder cable copper or fiber distribution cable, DLC and other electronic equipment. TELRIC ACFs developed in VCost are applied to all investments developed in the Loop Study. The annual costs are divided by twelve to produce monthly costs.

2. DSL-Compatible Loops

Q. What are xDSL technologies?

A. The term "xDSL" describes a family of transmission technologies that use specialized electronics at the customer's premises and at a telephone company's central office (or other company facility)[18] to

[18] In the case of ADSL, discussed below, the equipment at the customer premises is commonly referred to as an ADSL Terminal Unit — Remote ("ATU-R"). The equipment at the other end of the circuit is commonly referred to as a Digital Subscriber Line Access Multiplexer ("DSLAM").

1 transmit high-speed data signals over copper cables. Thus, xDSL
2 does not refer to any particular *service*, but to a family of *technologies*
3 that can be used to provision a wide variety of services.
4 The two current xDSL technologies are, by definition, copper-based;
5 that is, they can be utilized only over copper cables.[19] The fact that
6 these technologies utilize copper loops enables telephone companies
7 to extend the economic life of their embedded copper loop plant by
8 using that plant to provision high-speed digital services. xDSL is,
9 therefore, an interim technology — one that will eventually be
10 displaced by fiber-based transmission technologies. It is, moreover,
11 a technology that is based on and largely justified by the use of
12 embedded plant. Verizon MA is *not* deploying copper loops on a
13 forward-looking basis exclusively to support xDSL transmission
14 technologies or the advanced digital services that those technologies
15 can support.[20]

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[19] Certain other forms of xDSL technology, such as ISDN Digital Subscriber Line("IDSL"), *are* compatible with loops incorporating fiber-based DLC systems.

[20] While it is possible to utilize xDSL technologies on loops equipped with DLC technology, such applications involve the placement of DSLAMs at the remote terminal rather than at the central office. In such cases, however, the use of xDSL technology is limited to

(Continued . . .)

Q. What xDSL transmission technologies are relevant to the DSL services in this filing?

A The two xDSL technologies that are relevant are Asymmetrical Digital Subscriber Line ("ADSL") and High Bit-Rate Digital Subscriber Line ("HDSL"). ADSL utilizes a twisted-pair copper loop. The technology is "asymmetrical" in the sense that it can support a signal of up to 640 Kbps from the customer to the telephone company, but a signal of much higher bandwidth — 6 Mbps or more — from the telephone company to the customer.[21] The higher bandwidth in the telephone-company-to-customer direction permits rapid downloading of information from Internet Web servers or other databases. Moreover, using ADSL technology, data signals can be combined with a

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(Footnote continued)

the (copper) distribution portion of the loop; the technology would *not* be used on the (fiber) feeder facilities between the terminal and the central office. Thus, even in such applications, the use of the technology would still be limited to copper cables.

[21] The precise speed that is available in each direction depends upon the specifications of the terminating electronics that are used, as well as on the length and other characteristics of the loop.

1 conventional voice-grade POTS signal and transmitted over a single
2 facility.
3 Q. What services can be provisioned using ADSL technology?
4 A. ADSL technology is used to provision voice-and-data service
5 designed primarily to offer customers high-speed Internet access
6 together with voice-grade POTS service. Various CLECs offer their
7 own, competitive services based on ADSL technology.
8 Q. What is HDSL?
9 A. HDSL technology comes in two varieties, one of which utilizes a two-
10 wire copper loop and the other of which utilizes a four-wire copper
11 loop. The two-wire version supports symmetrical transmission at
12 speeds of up to 784 Kbps; the four-wire version supports speeds of
13 up to 1.5 Mbps. Four-wire HDSL technology can thus be used to
14 provision DS-1 circuits.
15 Q. What are DSL compatible loops?
16 A. DSL compatible loops are simply two- or four-wire copper loops that
17 will support the transmission of ADSL or HDSL signals. They extend
18 from the customer's premises to an interconnection point between
19 Verizon MA and the CLEC, located at a collocation arrangement in
20 Verizon MA's central office. Verizon MA does not provide the xDSL

terminating electronics at either end of the transmission path. Those are provided by the CLEC, its customer, or a third party.

Q. What is the forward-looking technology for DSL-compatible loops?

A. ADSL transmission technology can only be utilized over copper cables. The FCC confirmed this fact in its *UNE Remand Order*.[22] Thus, it simply does not make sense to talk about end-to-end DSL transmission over loops served by DLC systems and equipped with fiber feeders. The "most efficient technology currently available" for DSL transmission consists of copper cables. What CLECs have clearly requested from Verizon MA, and what Verizon MA provides, are copper transmission paths to which the CLECs can attach their own DSL electronics, provided by their own vendors and adapted to the services that they intend to offer. These electronics would not function properly over DLC systems.

Q. What rate is Verizon MA proposing to charge for ADSL compatible loops?

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[22] *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, Third Report and Order and Further Notice of Proposed Rulemaking (rel. November 5, 1999) ¶ 204 n.390 ("xDSL cannot work over fiber, and it generally requires a 'clean' (*i.e.*, conditioned) copper loop.").

1 A. Verizon MA is proposing to charge the same monthly recurring rates
2 for ADSL compatible loops that it charges for the two-wire analog
3 loop. This reflects the fact that the loops used by CLECs for
4 provisioning DSL services will in most cases be identical (except for
5 the need for conditioning) to the majority of the unbundled loops
6 actually provided to CLECs as two-wire analog loops. Costs and
7 charges associated with conditioning are addressed in Mr.
8 Meacham's testimony.

9 Q. Are any additional recurring costs associated with the provision of
10 xDSL-compatible loops?

11 A. Incremental investments and associated monthly costs have been
12 identified for wideband test access capability on ADSL-compatible
13 loops. These costs are addressed later in the Line Sharing section of
14 the testimony.

15 **3. Mechanized Loop Qualification**

16 ***a) The Qualification Process***

17 Q. Please provide an overview of the loop qualification process.

18 A. The primary means by which CLECs can obtain loop qualification
19 information is by submitting queries to Verizon MA's automated loop
20 qualification database (the "Database"). This Database supports both

Verizon MA's retail service and the provision of unbundled ADSL/HDSL-compatible loops to CLECs.

Since the Database is still in the process of being built on a central-office-by-central-office basis, in some cases a loop on which a CLEC wishes to offer an xDSL-based service may not yet be included in the Database. Alternatively, if the Database shows that the loop does not qualify, the CLEC may wish to determine *why* it is not qualified (*e.g.*, the presence of load coils, the presence of DLC equipment, or excessive loop length). (The particular information that a CLEC may need to qualify a loop for its own services depends on the nature of those services, and in particular on the technical characteristics of the terminating electronics that the CLEC chooses to use.) In such case, additional information can be provided through a Manual Loop Qualification process. Further information that may be of interest to CLECs offering specialized services, such as cable gauges and the location of load coils, is available through the Engineering Query process.

A CLEC that is offering services comparable to Verizon MA's retail services should be able to get all of the qualification information it needs from the Database (provided that the Database has been

created for the central office in question). The Manual Loop Qualification and Engineering Query processes recognize the fact that CLECs may wish to offer services with more stringent technical requirements than DSL. Costs associated with these manual processes are contained in the study presented by Mr. Meacham.

Q. What charges are proposed for the mechanized qualification function?

A. A recurring Mechanized Loop Qualification charge, applicable to all loops used to offer xDSL-based services, is proposed to recover a pro rata share of the costs incurred in the creation and maintenance of the Database.

Q. What information can a CLEC obtain from the Database and how is it obtained?

A. A CLEC can submit a query to the Database through Verizon MA's standard Operations Support System wholesale interfaces. The query may identify the loop in question by telephone number or address. The principal loop qualification information that is available from the Database and that would be of interest to CLECs is the total

metallic loop length (including bridged taps), as determined by an MLT test.[23] The Database will also indicate, however, whether the loop is qualified for the offering of DSL service. (A loop is deemed qualified for DSL if the total loop length, including bridged tap, is less than 15,000 feet, if the loop is *not* served by DLC, and if T1 is absent from the loop's binder group.[24])

It should be noted that although the Database is accessed by entering a particular telephone number or address, the loop qualification information is generated and stored on a terminal-by-terminal basis. The information returned from the Database indicates whether qualified loops are available within the terminal serving the specific location in question.

Q. How is the Database being created?

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[23] An MLT test determines the effective length of a loop by measuring its capacitance. The process involves sending a voltage pulse from testing equipment located in an MLT test center, through a central office switch port, and down the loop being tested. Only working loops, *i.e.*, loops connected to a switch port and provided with dialtone, can be MLT-tested.

[24] A "binder group" is a bundle of pairs, typically twenty-five, that are adjacent to each other within a cable. Transmission of T1 signals can interfere with xDSL transmission in nearby pairs, and *vice versa*.

A. The creation of the Database for a particular terminal involves MLT testing of a sample of the loops in that terminal. The testing is carried out on an automated, bulk-testing basis that greatly reduces the time and cost per test. The loop-length information obtained from the MLT test is then associated in the database with the telephone number and address of each of the loops served by that terminal.[25]

On an ongoing basis, the Database will be updated to reflect any changes in loop qualification information resulting from modifications or rearrangements to loop facilities (*e.g.*, the upgrading of a particular loop from copper to DLC).

Q. How many offices are currently included in the Database?

A. In Verizon MA, 83 percent of central offices, representing 96 percent of the Network Access Lines where CLECs are ready to purchase xDSL, *i.e.*, where CLECs are collocated currently, are in the database. Priority is being given to offices based on Verizon MA's

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[25] A preliminary step in the bulk testing process is generating a file listing the loops to be tested. Terminals that contain T1 in the binder group or that have less than a specified percentage of non-DLC loops are excluded from these files. Thus, loops in such terminals are not MLT-tested, and the terminals are simply recorded in the Database as non-qualified.

1 proposed roll-out of retail DSL service, the presence of CLEC
2 collocation, and specific CLEC forecasts for the offering of their own
3 xDSL-based services.
4 Q. Why doesn't the Database include *all* information that might be of
5 interest to CLECs intending to offer ADSL/HDSL-based services, and
6 that currently must be obtained through the Manual Loop
7 Qualification or Engineering Query processes?
8 A. Obtaining information on cable gauges, load coil locations, etc., for *all*
9 of Verizon MA's loops — and using it to populate a greatly expanded
10 database — would require a massive and highly expensive effort.
11 Paper records ("cable plats") would have to be reviewed for literally
12 millions of loops. This would greatly expand the cost of the Database
13 for all carriers, including those whose chosen technologies do not
14 require such detailed information. In contrast, under Verizon MA's
15 less extravagant approach, unnecessary costs are not incurred to
16 review cable plats for loops that may never be used to offer xDSL-
17 based services. Moreover, under Verizon MA's approach, the costs
18 of paper-record-review would be imposed in a cost-causative manner
19 only on those CLECs whose services require the additional
20 information.

Q. What charges are associated with the Database?

A. Verizon MA has proposed a Mechanized Loop Qualification Charge. This is a recurring charge, imposed on all ADSL-capable loops ordered by CLECs. (The associated cost is also identified as a cost of all loops used to provide Infospeed DSL service, and is covered by the retail rate for such service.)[26]

The Mechanized Loop Qualification Charge would not be imposed on loops served by central offices that are not included in the Database at the time of the CLEC request. It also would not be imposed on CLECs that choose not to consult the Database prior to ordering an ADSL/HDSL-compatible loop or DDL.

Q. What activities are involved in Database maintenance?

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[26] The charge is not based on the actual (*i.e.*, historical) costs of creating and maintaining the Database, but rather on the estimated, forward-looking costs of the functions involved in Database creation and maintenance. Moreover, with respect to Database creation, *only* the costs associated with MLT testing are recovered in the charge. Any additional costs (for example, the costs associated with excluding from MLT test files loops equipped with DLC technology or loops located in binder groups with T1 facilities) are not recovered in the wholesale charge.

The development of the Mechanized Loop Qualification charge is discussed in detail later in this testimony.

A. The activities involved in Database maintenance are related to program changes, loading and extracting data, and the updating of the records in the database performed by engineers in the Facilities Management Center ("FMC"). In general, these activities will be conducted on an ongoing basis as a consequence of changes in facilities, growth in loop plant, and CLEC requests for additional information not originally included in the Database.

This expense is in no way related to the computer-operations, software-development, and database management type expenses assigned for recovery through ACFs under such USOA Accounts as 6724 (Information Management).

b) Methodology for Mechanized Loop Qualification

Q. What was the basis for setting the Mechanized Loop Qualification charge?

A. The Mechanized Loop Qualification Charge was based on the costs of creating and maintaining the Database.

Q. How was that cost determined?

A. The Database creation costs are essentially the costs of performing MLT tests for a sample of loops in each terminal in the offices included in the database. Testing costs are determined by

multiplying the average testing time per loop[27] by the relevant labor rate. This generates a per-loop cost. The total testing cost is then determined for the five-year period that will be required to qualify all of Verizon MA's loops, and is reduced to a net present value ("NPV") basis. This total cost is then divided by the forecasted number of wholesale and retail ADSL loops that Verizon MA will be providing or using, also computed over a five year period and reduced to an NPV basis. The result is an average testing cost per loop utilized for ADSL/HDSL transmission. This cost was amortized over a 30-month period (representing an average "service life" for a customer's use of a retail ADSL-based service) to arrive at a monthly recurring cost.

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[27] The manner in which the cost-per-line (pair) tested was identified was based on the amount of time (*e.g.,* 10 minutes) taken to conduct the testing of a number of terminals and the total count of pairs in those terminals (*e.g.,* 1200 lines). The number of lines was then divided into the amount of time consumed (10 minutes) to come up with the cost-per-line or in this example, 0.0083 minutes per line (*i.e.*, 10 minutes/1200 lines). The actual number of lines physically tested was in fact only a sample of the total number of lines across which the testing costs was spread. (For terminals with between 10 and 100 lines, 10 lines were tested. For terminals with more than 100 lines, 20 lines were tested.)

The estimated times reflect the time required for an MLT test when the test is performed on an automated, bulk basis, as was the case for the tests performed in connection with the creation of the Database. MLT tests that are individually conducted, upon special request, require significantly greater time, particularly for associated administrative tasks.

Another component of the Mechanized Loop Testing Charge is the Database maintenance cost. The cost was developed by identifying the cost (labor rate times activity time duration), of program development and refinements, loading and extracting data, and other ongoing maintenance activities. Next, the cumulative number of lines qualified over the planning period, by year, was multiplied by the cost previously developed. Again, the forecasted number of subscribers requesting ADSL over the five-year planning period were also brought back, on a NPV basis, to the current year to match these expenses. The total Database maintenance expense was then divided by the total forecasted number of ADSL subscribers and converted to a monthly expense.

4. Line Sharing

a) Background: Description of Line Sharing and Proposed Serving Arrangements

Q. What is line sharing?

A. Line sharing generally describes the ability of a competitive LEC to provide xDSL based service over the same physical loop facility as is used by the incumbent LEC for the provision of a retail voice grade service. As part of this arrangement, voice traffic is transported in the 0-4 KHz frequency range; data traffic is transported in the available

spectrum above 4 KHz. This frequency separation is accomplished through the use of central office based "splitters" with low-pass and high-pass filters to combine the separate voice and data services onto a single loop facility. Splitters or filters are also required at the customer location to separate these services for delivery to the appropriate CPE (*i.e.*, telephone set for voice services and personal computer for data services). The FCC has addressed line sharing requirements in some detail in a recent order (the "FCC Order").[28]

b) Costs of Line Sharing

i) BACKGROUND

Q. What costs did the FCC conclude that the incumbent LEC could potentially incur in providing access to Line Sharing?

A. The FCC Order addresses five types of direct costs that an incumbent LEC could potentially incur to provide access to line sharing: (1) local loops; (2) OSS; (3) cross-connects; (4) splitters; and (5) line conditioning.

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[28] *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket Nos. 98-147 and 96-8, Third Report and Order in CC Docket No. 98-147 and Fourth Report and Order in CC Docket No. 96-98 (*rel.* December 9, 1999).