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June 17, 1999

BY HAND DELIVERY

Blanca Bayó
Director, Records and Reporting
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399

Re: Docket No. 981834-TP

Dear Ms. Bayó:

Enclosed for filing on behalf of ACI Corp. in the above docket are the original and fifteen copies of its Motion To Expand Scope of Independent Third Party Testing of BellSouth's Operational Support Systems.

By copy of this letter, this document has been furnished to the parties on the attached service list.

Very truly yours,

Richard D. Melson

RDM/mee
cc: Attached Service List

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition of Competitive Carriers for Commission Action to Support Local Competition in BellSouth's Service Territory	)))))	Docket No. 981834-TP Filed: June 17, 1999

ACI CORP.'s MOTION TO EXPAND SCOPE OF INDEPENDENT THIRD PARTY TESTING OF BELLSOUTH'S OPERATIONAL SUPPORT SYSTEMS

ACI Corp. ("ACI"), by and through its undersigned attorneys, hereby files its Motion to Expand Scope of Independent Third Party Testing of BellSouth's Operational Support Systems and requests that certain additional considerations be incorporated in the testing process requested by Petitioners' recent motion in this docket. In support thereof ACI states:

1. On May 28, 1999, Petitioners, Florida Competitive Carriers Association and AT&T Communications of the Southern States, Inc., filed their Motion for Independent Third Party Testing of BellSouth's Operational Support Systems (the "Motion"). The Motion requested independent, third party testing of several facets of BellSouth's operational support systems ("OSS"), including pre-ordering, ordering, provisioning, billing and repair and maintenance, for the several market entrance strategies available to Florida Alternative Local Exchange Carriers ("ALECs"). As the requested testing is critical to the development of a competitive local exchange market in Florida, ACI encourages the Commission to order independent, third party testing of BellSouth's OSS.

2. As discussed below, ACI requests that the testing process address several pre-ordering and ordering issues that are not specifically raised in the Motion. ACI is an advanced

services provider intending to provide a host of digital subscriber line ("xDSL")[1] services to Florida consumers in 1999. xDSL providers like ACI have certain unique OSS needs and ACI respectfully requests that the Commission ensure that the ordering and provisioning of xDSL services are specifically evaluated in the testing process.

3. ACI urges the Commission to ensure that the pre-ordering and ordering testing include an analysis of the data provided by BellSouth about its outside loop plant. Specifically, the Commission should require the independent testers to evaluate the ability of ALECs to receive real-time, electronic information about the physical characteristics of loops such as: (1) loop length; (2) wire gauge; (3) the presence and number of repeaters, load coils, pair gains, and digital added main lines ("DAMLs"); (4) the presence of digital loop carrier ("DLC") systems; and (5) the presence, location on the loop and cumulative length of bridge taps on each loop. Moreover, the testing should determine whether carriers are able to access this information before deciding whether to order a particular loop. The testing should also evaluate whether, once BellSouth provides this information, competitors can efficiently place their xDSL loop orders via a real-time, electronic interface.

4. This type of information is necessary because the various types of xDSL technologies are each technologically dependent upon loops with particular physical characteristics. For example, some xDSL technologies, such as ADSL, can only be provided over loops of up to a particular length. For loops that exceed this length, ACI could utilize another form of xDSL technology, such as SDSL. Similarly, as xDSL technologies cannot be provided over loops containing intervening equipment (*e.g.*, repeaters, load coils, pair gains, and DAMLs),

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1 The "x" in "xDSL" is a placeholder for the many different variations of DSL technology.

ACI needs to know if such equipment exists on the loops running to ACI's potential customers. For such loops, ACI would need to have such equipment removed. ACI therefore needs sufficient pre-ordering information about the physical characteristics of the loop to determine which xDSL technology to provision to its customers.

5. ACI looks forward to providing Florida consumers with the most advanced technological communications services available. To accomplish this, ACI and other xDSL providers must have access to the loop information that is integrally tied to the provision of such services and, after obtaining access to such information, must be able to efficiently order xDSL loops electronically.

6. To assist the Commission and the third party testers in identifying the necessary information, we have attached a copy of the April 27, 1999 Affidavit of Mr. Eric H. Geis, which ACI submitted to the New York Public Service Commission in connection with Bell Atlantic's section 271 proceeding.[2] This affidavit describes the different types of xDSL technologies (*e.g.*, ADSL, HDSL, SDSL) and explains why xDSL providers need specific loop information to efficiently deploy these technologies to consumers.

WHEREFORE, ACI respectfully requests that the Commission (i) grant Petitioner's motion and order independent third party testing of BellSouth's operational support systems, and (ii) expand the scope of the testing process requested in the Motion to incorporate the specific considerations described above and in the attached affidavit.

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[2] *Petition of the New York Telephone Company for Approval of its Statement of Generally Available Terms and Conditions Pursuant to Section 252 of the Telecommunications Act of 1996 and Draft Filing of Petition for InterLATA Entry Pursuant to Section 271 of the Telecommunications Act of 1996*, Case 97-C-0 271, Affidavit of Eric H. Geis on Behalf of ACI Corp., April 27, 1999.

RESPECTFULLY SUBMITTED this 17th day of June, 1999.

HOPPING GREEN SAMS & SMITH, P.A.

By: ______________________

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ATTORNEYS FOR ACI CORP.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing was served via U.S. Mail this 17 day of June 1999 to the following:

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EXHIBIT "A"

Affidavit of Eric H. Geis

Before the
STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In re: Petition of New York Telephone Company for Approval of its Statement of Generally Available Terms and Conditions Pursuant to Section 252 of the Telecommunications Act of 1996 and Draft Filing of Petition for InterLATA Entry Pursuant to Section 271 of the Telecommunications Act of 1996	Case 97-C-0271

AFFIDAVIT OF ERIC H. GEIS
on Behalf of ACI Corp.

I, Eric H. Geis, being first duly sworn upon oath, do hereby depose and state as follows:

1. I am the Secretary and Treasurer of ACI Corp. ("ACI"), a wholly owned subsidiary of Rhythms NetConnections Inc. My business address is 7337 S. Revere Parkway, Englewood, CO 80111. I am responsible for the deployment of ACI's data network in New York and the rest of the country.

2. I have twenty-five years of operating experience in telecommunications, working for regulated telephone companies, as well as for manufacturers and suppliers providing products and services to the telecommunications industry. I am a founder of ACI, and have been an officer since its founding in 1997. I am also on the Board of Directors for another competitive local exchange carrier ("CLEC"), Net2000, based in McLean, Virginia. My qualifications and business experiences are attached to my testimony as Attachment EHG-1.

PURPOSE AND SUMMARY OF RECOMMENDATIONS

3. The purpose of this affidavit is to explain how Bell Atlantic-New York ("BA-NY") continues to fall short of full implementation of the competitive checklist set forth in Section 271(c)(2)(B) of the Telecommunications Act of 1996 ("Act"). This affidavit responds, where appropriate, to specific statements made in BA-NY's Joint Supplemental Affidavit ("JSA") filed with the New York State Public Service Commission ("Commission") on April 13, 1999. It is my opinion that, notwithstanding BA-NY's claims in the JSA, BA-NY still has not established that it is providing or is able to provide all of the checklist items in a manner that fully complies with the requirements of the Act. BA-NY's failure to provide those items has slowed ACI's entry into the local telecommunications market in the state of New York.

4. Specifically, I will:

- Introduce and familiarize the Commission with ACI and its business plans to serve New York consumers;
- Demonstrate the critical role of the xDSL-based services that ACI plans to provide in New York in order to bring high-performance, high-speed data services to a broad market of New York consumers;
- Address specific issues regarding high-speed digital services described in paragraphs 194 through 214 of the JSA;
- Provide recommendations regarding these issues.

5. As discussed below, my recommendations are for the Commission to deny BA-NY's 271 application and order that BA-NY:

- Provide CLECs with loops that will support all types of xDSL services at cost-based rates that fully reflect TELRIC pricing principles;
- Abandon imposition of unilateral, unspecified spectrum management guidelines;
- Adopt and comply with a loop provisioning interval that is no longer than five (5) business days; and

- Provide CLECs with real-time electronic access to all necessary loop operations support systems and databases to ensure that CLECs can provide service to end users using the appropriate DSL technology without regard to BA-NY's DSL service deployment.

6. BA-NY's JSA for the first time in these 271 proceedings addresses DSL issues. After reviewing the JSA, I have numerous concerns about ACI's ability to fully deploy DSL service to New York customers in a manner that will maximize the availability of these services to a broad range of customers served by a variety of loop types. My concerns fall into three general areas: the ability to provision all necessary DSL technologies, the ability of BA-NY to unilaterally restrict DSL deployment through imposition of unnecessary spectrum management guidelines, and the inability of data CLECs to obtain necessary loop make-up data for provisioning DSL services. I will address each of these concerns briefly.

7. First, BA-NY's description of DSL availability indicates that it is severely limiting the ability of data CLECs—such as ACI—to deploy DSL technologies over unbundled loops. Specifically, while BA-NY claims it makes loops available for DSL services generally, its description appears to limit loop availability to only one type of DSL, asymmetric DSL or "ADSL." Perhaps not coincidentally, this is the same type of DSL that BA-NY intends to deploy in New York. As I will describe, there are numerous standard other DSL technologies that have been successfully deployed by CLECs across the country, such as HDSL, IDSL and SDSL (which I describe more fully below). The JSA never even mentions these other types of DSL. The ability to deploy these DSL services is dependent upon the ability to obtain "clean" copper loops on reasonable terms and conditions. Although BA-NY claims it will "condition" loops at the CLEC's request, such conditioning is presently only available on an ICB basis. The time entailed in obtaining a "clean" loop is therefore likely to be unreasonably extended. The only loops that BA-NY intends to make readily available for DSL are designed to meet the simplified

version of DSL that its retail arm will offer in New York, namely ADSL on loops under 12 kft. Since BA-NY does not intend to serve a broad range of customers, New Yorkers served by loops that do not meet the technical specifications of BA-NY's offering will only be able to obtain advanced data services, including DSL, from data CLECs such as ACI, that deploy a variety of DSL technologies.

8. Second, BA-NY seeks unilaterally to impose unnecessary technical requirements on competitors' provision of DSL services through BA-NY specific "spectrum management guidelines." The Federal Communications Commission ("FCC") has recognized the anticompetitive potential of such guidelines and specifically restricted their use. Nevertheless, BA-NY seeks to impress this Commission with the need for these guidelines. However, as I will demonstrate, the FCC has recognized that existing technical standards as developed and implemented by collaborative industry efforts provide ample protection against any potential interference. These standards were specifically designed to ensure compatibility with legacy loop conditions. Accordingly, this Commission should not allow BA-NY to restrict competitors deployment of DSL services through imposition of unnecessary standards or spectrum management guidelines.

9. Third, as I describe below, BA-NY's "pre-qualification" loop procedures are insufficient for competitors seeking to provide an array of DSL services. ACI requires real-time access to basic loop make-up information—such as the physical medium of the loop (*i.e.*, copper or fiber), loop length, the length and location of bridges taps, the loop wire gauge, and the presence of load coils, repeaters, DLC systems or DAMLs.—that will enable ACI to determine what and how to provision services to a particular end user. BA-NY fails to provide the necessary information or access to such information.

DESCRIPTION OF ACI'S BUSINESS

10. ACI received approval to operate as a competitive local exchange carrier from the New York Commission on May 20, 1998. ACI's approval entitles ACI to provide voice and high-speed data services in New York.

11. ACI is a nationwide provider of high-performance, high-speed data services, primarily using digital subscriber line ("DSL") technology for high-speed local access to and from the end users' desktops. ACI plans to provide highly reliable data networking solutions at a reasonable cost to residential and business consumers in New York and elsewhere. ACI does not focus solely on the Internet service provider market, but instead intends to provide broad market coverage—including suburban areas as well as metro areas—offering a full range of services. ACI's services will be used for: (1) the networking of remote locations for, among other things, telecommuting or work-at-home applications; (2) dedicated access to the Internet; and (3) dedicated "always-on" access to intranet-type networking solutions. ACI has begun to deploy its data networking services in New York markets.

12. In order to provide DSL service, ACI is dependent on the ILECs for three primary components. First, ACI must lease "clean" copper loops that are unfettered with any interfering loop equipment such as load coils and repeaters. Second, ACI needs to be able to collocate and maintain equipment at the central office end of the loop. Third, ACI often requires timely provision of unbundled transport facilities from the ILEC because competitive interoffice transport alternatives are unavailable. Collocation and transport issues will be discussed in the Affidavit of Paul Bannwart, and my Affidavit will focus on loop issues pertinent to xDSL services.

13. ACI currently provides high-performance, high-speed data services in California, Illinois, Massachusetts, New York, New Jersey and Pennsylvania. As it completes network construction and deployment over the next several weeks, ACI will begin providing these same high-speed data services in Maryland, Virginia, and the District of Columbia. ACI is also working with incumbent local exchange carriers ("ILECs") in other states to build collocation cages and order facilities so that ACI can begin its service offerings there in the upcoming months.

14. ACI's provision of DSL services competes directly with Bell Atlantic's DSL services. Bell Atlantic recently rolled out its retail DSL offering, called InfoSpeed™ DSL service, throughout its region on a large scale and will introducing this service in New York in June 1999. I have attached a printout from Bell Atlantic web page to my Affidavit as EHG-2, which describes BA's InfoSpeed™ DSL services in greater detail. BA-NY's InfoSpeed™ services are primarily for Internet access, where ISDN speeds are sufficient to upload and download information from the Internet. Therefore, BA-NY's InfoSpeed™ is being deployed at ISDN-like speeds, which are considerably slower than those that DSL is capable of providing. In addition, for years most ILECs have provisioned 1.544 mbps "T-1" services using High bit rate DSL ("HDSL") technology. When DSL is deployed to its full capacity, it can often compete with much higher-priced ILEC T-1 offerings. Thus, BA-NY clearly has the incentives, recognized by the FCC, to impede rapid, full scale deployment of DSL. New York consumers, on the other hand, stand to garner substantial benefits from competitive high speed data offerings.

DESCRIPTION OF DSL TECHNOLOGIES

15. In New York, as it has in other jurisdictions, ACI intends to provide customers with high-speed data services using a variety of DSL technologies. The "x" in "xDSL" is a variable, meant to encompass the various types of DSL technologies, and is used when speaking generally about DSL. However, from its JSA, it appears that BA-NY's restriction of DSL-capable loops to ADSL loops could seriously deter the deployment of other types of high-speed data networking services in New York. Significantly, BA-NY, while speaking generally about "xDSL" offerings, offers only to provide loops for one form of DSL technology, ADSL. In order to understand why CLECs should be able to deploy various types of DSL, the Commission must appreciate the significant differences in the types of DSL that are presently being deployed around the country. As I will describe below, these differences enable data carriers to provide a variety of services to a broader range of New York consumers.

16. DSL uses an ordinary existing copper loop to provide high-bandwidth digital transmission capabilities between the end user's premises and the ILEC central office. By "high-bandwidth," I mean the amount of information that can be carried on a circuit, usually expressed as bits per second ("bps"), thousands of bits per second ("Kbps"), or millions of bits per second ("Mbps"). DSL technologies provide a variety of bandwidths, in some cases exceeding 7 Mbps in one direction, but more commonly are deployed to provide between 128 kbps and 1.5 Mbps of data throughput. In contrast, an analog voice-grade "plain old telephone service," or "POTS" circuit provides very limited throughput. Voice traffic occupies a narrow frequency spectrum, and analog modems are only able to achieve somewhere close to 56 kbps (and then only under ideal line conditions). DSL technologies, on the other hand, allow service

providers like ACI to offer a variety of innovative high-bandwidth services while efficiently using the legacy copper loop infrastructure of the ILEC.

17. DSL technologies use two approaches in combination to yield high-bandwidth over ordinary legacy copper loops. First, unlike analog voice POTS service, DSL technologies use a much wider frequency spectrum as they transmit over these loops. Analog voice (and analog data) signals are transmitted over a narrow frequency range of 0 to 3,400 Hertz (1 Hertz=1 cycle per second). In contrast, DSL technologies use transmission frequencies between 0 and about 1 MHz.

18. Second, DSL technologies employ various approaches to line coding, the technique used to send bits of information over the copper wire. I will not attempt to discuss the technical details of the different line coding approaches, except to say that these line coding approaches have the effect of making DSL technologies more efficient, because they allow for more information (bits) to be transmitted across a given amount of frequency spectrum.

19. ACI has successfully and routinely deployed numerous types of DSL-based services on copper loops, including Asymmetric Digital Subscriber Line ("ADSL"), Rate Adaptive Digital Subscriber Line ("RADSL"), High bit rate Digital Subscriber Line ("HDSL"), Symmetric Digital Subscriber Line ("SDSL") and ISDN Digital Subscriber Line ("IDSL"). A detailed description of DSL technologies is contained in *The DSL Source Book*, attached to my testimony as Attachment EHG-3. The acronym "xDSL" is used to describe the broad category of DSL technologies encompassing all of the above types of DSL-based services.

20. There are important distinctions between the types of DSL technologies, and these differences explain why there are multiple DSL technologies that are currently being offered to residential and business consumers in other states. In the following paragraphs, I will

briefly explain the technical parameters of the various types of xDSL technologies successfully being deployed by ACI in other jurisdictions.

21. ADSL was originally developed to support the delivery of entertainment video, or "video dial tone," services over existing copper loops. Such video services require much higher bandwidth in the "downstream" direction (toward the customer premises) than they do in the "upstream" direction (toward the central office), because the video signals being transmitted to the customer's premises require a large amount of bandwidth, and the upstream signal was assumed to be a voice or non-video data signal requiring much less bandwidth. Thus, the need for bandwidth was deemed to be asymmetrical; that is, a high-bandwidth signal in the downstream direction and a lower bandwidth signal in the upstream direction.

22. Even though most (if not all) ILECs have not deployed video dial tone services based on ADSL, this asymmetrical DSL technology has found a new use: Internet access. Internet access tends to display asymmetrical traffic patterns similar to video dial tone services. Most of the traffic flows toward the end user, as graphics-intensive web pages and data files are downloaded. The upstream traffic consists of a few keystrokes and occasional uploads of e-mail and data files.

23. ADSL is designed to achieve a downstream transmission rate of 1.5 Mbps for loops of up to 18,000 feet in length, and a downstream transmission rate of 7 Mbps for loops of up to 6,000 feet in length, assuming 2-wire loops of 24-gauge copper. The downstream and upstream data signals are transmitted using separate frequencies, and both data streams use frequencies above the frequencies used to transmit voice signals.

24. RADSL is a type of ADSL. As is the case with other types of ADSL, the downstream and upstream data transmission rates of RADSL are asymmetrical (though it is also

possible to configure RADSL for symmetrical data transmission rates). RADSL is more flexible than other types of ADSL because it is rate adaptive; that is, the DSL equipment automatically adjusts the transmission speed to the optimal level achievable on each loop. RADSL can therefore transmit data at a wide range of transmission speeds, depending on the length and condition of the loop being used.

25. RADSL is designed to achieve a downstream transmission rate of 1.5 Mbps for loops of up to 18,000 feet in length, and a downstream transmission rate of 7 Mbps for loops of up to 9,000 feet in length, assuming 2-wire loops of 24-gauge copper. The downstream and upstream data signals are transmitted using separate frequencies, and both data streams use frequencies above the frequencies used to transmit voice signals.

26. SDSL was developed to support symmetrical data transmission rates of up to 1.5 Mbps in each direction. There are several types of SDSL, using a variety of line coding approaches, and supporting variable data transmission rates. SDSL is designed to achieve symmetrical transmission rates of up to 1.5 Mbps for loops that exceed 20,000 feet in length (for one type of SDSL), assuming 2-wire loops of 24-gauge copper. The downstream and upstream data signals are transmitted using the same frequencies. The data signals use a frequency bandwidth that includes the frequencies used to transmit voice signals. As a result, SDSL-equipped loops cannot be used for simultaneous analog POTS service.

27. HDSL is also a symmetrical DSL configuration. HDSL supports a data transmission rate of 1.5 Mbps in each direction. Unlike other types of DSL, HDSL requires a 4-wire circuit (that is, two 2-wire loops). HDSL can achieve 1.5 Mbps on loops up to 12,000 feet in length, assuming loops of 24-gauge copper. The downstream and upstream data signals are transmitted using the same frequencies. The data signals use a frequency bandwidth that

includes the frequencies used to transmit voice signals. As a result, HDSL-equipped loops cannot be used for simultaneous analog POTS service.

28. IDSL is a symmetrical DSL configuration. IDSL uses the same coding and parameters as ISDN, a digital data technology that has been in use by BA-NY and other ILECs for quite a while. As a result, IDSL can be deployed on copper or copper/fiber loop plant configurations. IDSL supports a data transmission rate of 128 kbps in each direction, on 2-wire loops of up to 26,000 feet in length, assuming loops of 24-gauge copper. As is the case with SDSL and HDSL, IDSL transmits the downstream and upstream data signals using the same frequencies. The data signals use a frequency bandwidth that includes the frequencies used to transmit voice signals. As a result, IDSL-equipped loops cannot be used for simultaneous analog POTS service.

29. Initially, ACI plans to deploy ADSL (including RADSL), SDSL, and IDSL in New York. Although the particular type of DSL technology to be used is a function of a number of variables, ACI will typically use RADSL on shorter clean copper loops, SDSL on clean copper loops of intermediate length, and IDSL on long loops or on loops that are carried on fiber DLC systems.

30. ACI has deployed these xDSL types successfully in other states. In the California territory of Pacific Bell, ACI has widely deployed RADSL, SDSL and IDSL. ACI has also deployed these three types of xDSL in Illinois, Massachusetts, and Pennsylvania, and will shortly deploy them in New York and several additional states.

ALL DSL VARIETIES MUST BE AVAILABLE IN NEW YORK

31. From a marketing and customer service standpoint, it is critically important that ACI have the ability to offer this variety of DSL-based services. Although ADSL

is the most widely used DSL technology deployed by ACI, these other variants offer extremely important advantages. For example, while ADSL can be offered to customers only within approximately 18,000 feet of a central office, SDSL and IDSL have longer effective reaches, up to more than twice that distance. In fact, over 25% of ACI's current customers are located more than 18,000 feet from the ILEC central office. These customers would be deprived of the benefits of high-speed technologies if ACI were forced to offer only the limited capabilities of ADSL service. In addition, IDSL works on the same type of unbundled loop that BA-NY uses to provision ISDN services. Unlike other types of xDSL where the end users loop must be "clean" copper from end-to-end, ISDN/IDSL loops can include "repeaters" and Digital Loop Carrier ("DLC") systems. Thus, the IDSL option will allow ACI to serve more New York residents and serve them more easily.

32. The FCC's March Advanced Services Order specifically holds that "any technology which has been successfully deployed by any carrier without significantly degrading the performance of other services . . . is presumed acceptable for deployment."[1] Further, the FCC declared that "incumbent LECs should not unilaterally determine what technologies LECs, both competitive LECS and incumbent LECs, may deploy."[2] Accordingly, CLECs should not be constrained to deploy only those services the underlying ILEC has chosen to provide.[3] The description in BA-NY's JSA regarding xDSL offerings shows quite clearly that what BA-NY offers to CLECs is grounded in its own retail plans. For instance, BA-NY "xDSL unbundling offering" provides "unbundled *ADSL*-compatible loops." Similarly, "pre-qualified" loops are

[1] *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, First Report and Order and Further Notice of Proposed Rulemaking, CC Docket 98-147 ¶ 67 (rel. March 31, 1999) ("*Advanced Services Order*").

[2] *Id.* At ¶ 63.

[3] *Implementation of the Local Competition Provisions of the 1996 Act*, First Report and Order, 11 FCC Rcd. ¶ 292 (1996) ("*Local Competition Order*").

those loops that meet the requirements of "BA-NY's initial equipment choices and service configuration" (JSA ¶ 206); likewise, the systems and processes BA-NY is developing are to "support its commercial ADSL service offering." (JSA ¶ 204)

33. Accordingly, I recommend that the Commission require BA-NY to provision all loop types that are capable of supporting each of the types of xDSL described above. ACI believes the Commission must order BA-NY to go beyond the proposals outlined in ¶¶ 203-214 of its JSA, which is not only frustratingly vague in connection with xDSL services, but suggests that BA-NY may only be willing and able to provide ADSL-capable loops up to 12 kft to CLECs. This unilateral restriction will unnecessarily prohibit ACI from rather than the full range of xDSL services described above. Instead, the Commission should require BA-NY to provide "clean copper loops" to carriers for provision of high-speed data services using all types of DSL, including ADSL, RADSL, SDSL and HDSL. CLECs should retain the right to decide which xDSL services they wish to provision, and should have access to all loops capable of providing those xDSL services.

34. An underlying presumption in BA-NY's discussion of it xDSL offering, is that it will decide when and what services can be deployed over the unbundled loop. Therefore, BA-NY only offers ADSL loops (JSA ¶ 205), provides pre-qualification loop data on the technical parameters of its service choice (JSA ¶ 206) and seeks to impose unilateral spectrum management guidelines on CLEC's use of the loop to provide DSL services. (JSA ¶ 204) ACI should not be arbitrarily limited in the DSL services it can provide by BA-NY's unilateral determinations of loop capabilities. Because ACI will provision the DSL-based service to the end-user, ACI—not BA-NY—must make the business decisions regarding the type of DSL service offered to the end user to meet customer needs. ACI is directly accountable to the

customer and must be able to make changes or decisions based on customer needs and demands, independent of BA-NY decisions on loop characteristics. ACI's desire to make its own business judgments regarding the type and quality of service it provides to its customers is not only reasonable, it is essential if ACI is to provide New York customers with one of the benefits of the 1996 Act: namely, improved service quality and choice for high speed data services.

CLEAN COPPER

35. BA-NY's JSA implicitly acknowledges that certain loops may be unsuitable for xDSL services and indicates that "BA-NY will prepare the loop for xDSL service by removing load coils if technically feasible . . . ." (JSA ¶212) This statement raises at least two concerns. First, load coils are not the only interfering equipment that BA-NY may have on a loop. For most types of DSL technologies, the copper loop used must be "clean copper," that is, free of devices such as load coils, repeaters, and Digital Loop Carrier systems, and the loop can have only a limited amount of bridged taps. Second, as the following discussion will demonstrate, there is no question that it is "technically feasible" to remove problematic electronics from the loop or to otherwise address the need for "clean" copper to provision xDSL services.

36. For a loop to be capable of carrying the full range of advanced, high-bandwidth digital services, it must be clean copper end-to-end from the central office or remote terminal to the end user's premises. I use the term "clean copper" to refer to a copper loop that is free of load coils, repeaters, and DLC systems.[4] The "clean copper" terminology allows a limited amount of bridged taps on the copper loop in question. By definition, loops that are carried in

[4] Some ILECs, perhaps including BA-NY, have recently begun deploying a technology known as Digital Added Main Line ("DAML"). DAMLs are devices that are placed in the distribution portion of the loop plant and are used

whole or in part on fiber systems are not "clean copper" loops. Indeed, for ADSL, both BA-NY and ACI will have to use a "clean" (no load coils, no repeaters, minimal bridged taps, and no DLC systems) 2-wire copper loop from the customer premises to a BA-NY central office.

37. The presence of load coils, bridged taps, repeaters, and DLC systems on a loop preclude or impair the use of xDSL on the loop. Each of these devices or technologies allows analog POTS signals to be transmitted over the loop in question. Indeed, devices such as load coils and repeaters have been deployed historically in the loop plant to extend the useful reach of a loop to be used for POTS services. Absent such devices, the POTS voice signal would become too attenuated, or faint, on very long loops. However, these same devices and technologies preclude or degrade xDSL signals on a copper loop. I discuss each of these below and demonstrate that it is not only "technically feasible" to "clean up" the copper, but also that it is not overly difficult to do so.

LOAD COILS

38. Load coils are devices placed on a copper loop at regular intervals if the loop exceeds a certain length, typically 18,000 feet. Telecommunications signals attenuate, or lose strength, due to the resistance of the copper in the loop; the greater the loop length, the more the attenuation and the weaker the signal received at the customer's premises. Also, attenuation is greater at higher frequencies than at lower frequencies, reducing the quality of the voice signal. Load coils modify the electrical characteristics of a copper loop to overcome the attenuation distortion associated with long loops. None of the xDSL technologies discussed above can be deployed on loops equipped with load coils. The load coils are not compatible with the higher transmission frequencies employed by xDSL technologies.

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to derive two voice-grade POTS circuits from a single copper pair. The presence of DAMLs precludes the use of a loop to support most xDSL technologies.

39. Load coils can be removed from loops. Load coils are located outside the central office, usually in manholes, vaults, pedestals or other enclosures. To remove load coils, a service technician must be dispatched to the location(s) in question. Given the availability and expected rapid spread of xDSL technologies, it is most efficient to remove load coils in minimum increments of one cable binder group, which normally contains 25 wire pairs for new cable deployment. Most ILECs have been removing legacy load coils from copper loops for years in order to support ISDN services and provisioning of T-1 circuits using HDSL technology.

40. Not all loops require load coils to be installed on them. According to BellCore loop engineering standards, load coils should only be placed on loops that are over 18,000 feet in length. I've attached an excerpt from an AT&T Handbook that details these standards as EHG-4. Because ADSL is typically deployed at lengths up to 18,000 feet, load coils should not have been installed on loops that BA-NY provisions as "ADSL-capable." If load coils do appear on any loop less than 18,000 feet in length, the purchasing CLEC should not be forced to reimburse BA-NY for removing them because they have been installed contrary to established design standards.

<u>BRIDGED TAPS</u>

41. Bridged taps refer to the ILEC practice of configuring the loop plant in such a way that a single wire pair can be used to serve multiple end-user locations (although not simultaneously). This configuration allows an ILEC to deploy fewer copper facilities all the way to the end user premises, and historically was a method to address the uncertainty of the rate of demand growth in a particular area.

42. Bridged taps create additional degradation for xDSL signals. Bridged taps are used to extend the telephone cable to additional homes so that vacant loops will be available to fulfill customer requests. Any portion of the loop that extends to a customer premises other than that of the requesting customer, and thus is not in the direct talking path to the central office, is called a bridged tap. Bridged taps reduce the amount of the signal that reaches the customer premises, and the effect varies, depending on the bridged-tap length and the frequency spectrum of the xDSL.

43. xDSL technology can be deployed on a loop equipped with bridged taps, so long as bridged taps are not excessive in length. The total cumulative length of bridged taps on a loop must generally be less than 2,500 feet. Short bridged taps of 200-300 feet located near customer premises can also create problems because of a "tuned resonance" effect. In order to remove bridged taps, as is the case with load coils, a technician must be dispatched to the field to remove the bridged taps.

REPEATERS

44. A repeater is used to boost the signal strength to avoid attenuation on long loops. BA-NY's legacy copper loop plant contains different kinds of repeaters for different types of existing services. Repeaters for analog POTS loops are located in the central office, but are only used on very long loops (in fact, such loops will likely be too long to use for any xDSL-based service). Analog POTS repeaters are used to boost the voice signal and the DC voltage of a POTS circuit. Other types of loops, such as loops used to provide T-1 service, may have repeaters located in the outside loop plant (such repeaters, of course, have little if any relevance to the provisioning of 2-wire xDSL-capable loops). Repeaters must be removed before loops can be used for ADSL, RADSL, SDSL, or HDSL. Analog POTS repeaters located in central offices

can be removed by CO-based technicians. A technician must be dispatched to the field to remove T-1 repeaters.

DIGITAL LOOP CARRIER SYSTEMS

45. Digital Loop Carrier systems involve the multiplexing of telecommunications signals and the carriage of that multiplexed signal on a transmission medium. Although ILECs have historically deployed DLC systems on copper, essentially all DLC systems today are deployed on fiber systems. DLC systems serve two purposes. First, they allow the ILEC to use fewer facilities in the feeder portion of the loop plant. Second, with respect to fiber-based DLC systems, they allow longer loops to be provisioned without the use of load coils.

46. At the present time, particularly with respect to fiber-based DLC systems, xDSL technology (except IDSL) is not compatible with DLC systems. However, several vendors are currently working on solutions that will allow xDSL technologies to be used on DLC systems. Moreover, as I discuss below, there are at least two near-term solutions available today: Regrooming the loop plant to use a loop carried on parallel all-copper systems, and placement of additional equipment in the field.

47. Fiber-based DLC systems, once deployed, are an integral part of the loop plant for the loop in question. Thus, fiber-based DLC systems cannot be removed. However, fiber-based DLC systems usually are deployed on feeder routes that are currently also equipped with copper feeder facilities. These copper facilities are normally not removed when the fiber systems are deployed to overbuild the feeder route. Thus, for a particular loop currently carried by a fiber-based DLC system, it is usually possible to regroom the loop plant to obtain a copper

loop carried by the parallel copper feeder facilities, which can be used to provide xDSL services to the customer premises in question.

48. BA-NY has agreed to "rearrange the existing customer's service to either a copper pair or stand alone universal digital loop carrier ("UDLC") facilities." (JSA ¶ 196) Rearrangement onto UDLC does not resolve the technical issue for use with DSL technologies. The Commission should clarify that when a carrier requests it, BA-NY will rearrange to a copper facility if possible.

49. A second approach to work around the presence of fiber in the feeder plant is to place xDSL equipment at the feeder distribution interface in the field. Such equipment is known as a Digital Subscriber Line Access Multiplexer ("DSLAM"). For xDSL services, the basic requirement is that DSLAMs are placed at the end of the copper loop facility, wherever the copper ends. That copper loop can run all the way to the main distribution frame ("MDF") in the central office, in the case of an all-copper loop, or at the feeder distribution interface ("FDI"), in the case of a fiber-based DLC system. Feeder distribution interfaces for fiber-based feeder systems are normally located in controlled environmental vaults ("CEVs") or other enclosures that house the associated fiber, multiplexing and cross connect equipment. These same locations can be used to house DSLAMs. I note that the presence of fiber in the loop constrains the provision of xDSL services equally for BA-NY and ACI. That is, they both need to put DSLAMs in the feeder distribution interface location in order to provide xDSL-based services if there is no available copper feeder plant for the loop(s) in question. The placement of DSLAMs at these locations is technically feasible.

50. BA-NY's assertion that "access to remote terminals . . . is a request for sub-loop unbundling" is therefore troubling. First, because ACI would collocate its DSLAM in

the remote terminal and then use the fiber portion of the loop to carry the digital signal to the CO, there is no sub-loop unbundling; ACI would use the entire loop. Second, in its March Advanced Services Order, the FCC specifically requires ILECs to permit collocation in CEVs.[5] Accordingly, BA-NY's insistence that such collocation constitutes impermissible "sub-loop unbundling" is directly contrary to the FCC's findings. Finally, as noted above, if BA-NY served this customer using present technology, it would have to collocate its DSLAM in the remote terminal. It is clear from BA-NY's assertion that it "does not plan to condition loops for its own commercial ADSL service offering," (JSA ¶ 211) that BA-NY does not intend to "reach" all potential DSL end users. Thus, if BA-NY refuses to provide access to remote terminals to CLECs such as ACI that want to service these customers, New York consumers will continue to be denied high speed data capabilities.

51. As described above, in order to provision DSL services, clean copper loops must be made available to CLECs. The above discussion makes it clear that it is "technically feasible" to address the presence of repeaters, bridged taps, load coils and DLC. Thus, the Commission should require BA-NY to make clean copper loops available to CLECs for the provision of high-speed data services. This position is consistent with the FCC's requirement that ILECs must "take affirmative steps to condition existing loop facilities,"[6] including "conditioned" loops capable of transmitting high-speed digital signals."[7]

52. It is important to keep in mind that, regardless of any difference between DSL-based services ACI wants to provide, and the DSL services BA-NY seeks to provide, both ACI and BA-NY need the same "clean" copper loops to provide these services. Therefore, the

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[5] *Advanced Services Order* ¶44.

[6] *Local Competition Order* at 15,499, 15,689-91.

[7] *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, Memorandum Opinion and Order, FCC 98-188 ¶ 32 (Aug. 7, 1998) ("*Advanced Services MO&O*").

loops that BA-NY provisions to itself are technically no different than those it provisions to CLECs offering DSL services. Thus, there is no technical reason why BA-NY cannot offer CLECs "clean copper loops for CLEC provision of DSL services.

53. Accordingly, clean loops should be provided to CLECs without unnecessary delay or expense. If ACI must wait for BA-NY to "condition a loop," *e.g.*, remove load coils, bridged taps or repeaters, in situations which are technically unnecessary, the provisioning time for that loop will naturally increase. ACI thus will be delayed in its ability to offer services to the end user. In addition, ACI will be also have to expend financial resources for BA-NY to perform services to a loop that are not necessary.

LOOP QUALIFICATION INFORMATION REQUIREMENTS OF DSL PROVIDERS

54. BA-NY's discussion regarding CLEC access to loop qualification information raises several serious concerns. (JSA ¶¶ 206-208) The pre-qualification loop database referenced by BA is a very high-level screen for BA-NY's own DSL services and fails to provide CLECs with any meaningful access to the necessary loop information in BA-NY's existing databases such as LFACS or TIRKS. In order to meet the requirements established by the FCC and this Commission for access to operations support systems ("OSS"), BA-NY should provide CLECs with mediated (read only) access to loop OSS and associated databases.

55. BA-NY essentially proposes a two-tiered approach to information data: first, CLECs could access a database specifically designed for BA-NY's roll out of its limited ADSL offering. (JSA ¶ 206) Second, CLECs could access the same loop information manually under certain unspecified circumstances. (JSA ¶ 207) Perhaps the greatest concern arises from the apparently limited nature of the loop data BA-NY proposes to provide. Specifically, BA-NY's description clearly indicates that its loop database is structured specifically to support its

own DSL offering. Thus, while it is extremely helpful to BA-NY's retail operations to have a database that indicates which loops can support which *BA-NY services*, this information is of very little use to CLECs with different, and broader, service parameters. BA-NY does not provide loop data designed to support CLEC-specific offerings, which vary substantially from BA-NY's offerings. Indeed, it does not appear that BA-NY provides access to data sufficient even to allow CLECs to make their own service judgments. Rather the only information provided by BA-NY, is whether a loop meets the service characteristics BA-NY has identified for its retail offerings. For these reasons, BA-NY's claim that it is providing loop data at parity is hollow and masks their competitive advantage.

56. ACI must have access to existing BA-NY electronic, automated operations support systems and databases that allow rapid and efficient access to pre-ordering information about the technical make-up of a potential customer's loop, and to on-line ordering and maintenance systems. Thus, ACI will need specific information and data about BA-NY's outside plant during the pre-ordering and ordering process to make effective business decisions so that we can provision the best possible service to our customers. As I will explain more fully below, ACI requires real-time, fully electronic information about the physical makeup of the loop including loop length, wire gauge, presence and numbers of repeaters, load coils and bridged taps and existence of digital loop carrier. BA-NY's loop qualification database does not meet this need. As described in its JSA, it appears that the only information BA-NY will provide to data CLECs via the pre-qualification database is whether a loop is suitable for BA-NY's deployment of ADSL. (JSA ¶ 213)

57. Access to information tailored to BA-NY's limited ADSL retail offering is insufficient for ACI because ACI plans to deploy a variety of xDSL technologies, depending

upon the particular characteristics of BA-NY's loop plant serving individual customers. Accordingly, ACI needs complete loop make-up information about each loop. This information includes loop length, wire gauge, presence of load coils, location and cumulative length of bridged taps, presence of repeaters, presence of DLC systems and presence of DAMLs.

58. As I discussed above, different xDSL technologies are appropriate, depending on the characteristics of particular loops. This loop make-up information is required so that ACI can determine which implementation of xDSL technology is appropriate, or indeed if the loop in question is capable of supporting any particular xDSL technology. Based on the loop make-up information, ACI will use a different technology to provide service to an end user with a very long loop, or a loop served by digital loop carrier, than one with a short, clean loop. Also, to allow ACI to make service guarantees to its customers regarding speed of digital transmission and reliability, ACI must know the loop makeup information. ACI must have this information to make its own business decision about the choice of appropriate DSL-based service for the particular loop, as opposed to being forced to settle for BA-NY's determinations of which DSL service ACI should deploy.

59. The access to information about the physical characteristics of the loop that we propose will allow ACI's customer service representatives to notify customers in a timely manner regarding the ACI services for which they are eligible. This access will put ACI at parity with BA-NY, because customers can be served just as quickly by ACI as by BA-NY, or more importantly, just as quickly as ACI can serve them with no artificial handicaps or delays imposed by BA-NY. Without complete loop make-up information, ACI would have to "guess" as to the loop's characteristics and associated capabilities each time it ordered a loop, and if we guess wrong, we would have to keep guessing until we got it right. By the time the guessing

game is complete, precious time elapses and ACI could lose a potential customer. If ACI's potential customers are forced to wait several days before learning whether they can get service from ACI, and what services are available, the customers will likely not choose ACI, but will instead go with a carrier that has the information required to make a quick judgement, such as BA-NY.

60. The availability of loop make-up information for the initial contact with potential customers is critical to ACI's ability to win new customers and enable ACI to compete on an equal footing with Bell Atlantic, which is presently offering ADSL services in its region and intends a large scale roll-out in New York starting in June. As an example, I am familiar with the recent experience of two customers who ordered DSL from Pacific Bell, using an electronic ordering system. Those customers were able to complete the entire process of pre-ordering and ordering, including obtaining loop make-up information, placing the order, receiving a price quote and due date, in less than 14 minutes, start to finish. It goes without saying that the ability to verify loop make-up and complete the order while the customer is still on the line obviously has a significant sales impact.

61. ACI strongly support electronic access to loop make-up and other pre-ordering information. Electronic access allows CLECs greater flexibility in structuring their workforce, because on-line systems could be used 24-hours per day to research the suitability of customer loops to support DSL. Electronic systems can also support much greater volumes of inquiries than will manual systems. In addition, ILECs may have internal electronic pre-ordering and ordering systems available, thereby giving them an advantage in serving customers over competitors such as ACI. Time is of the essence in providing pre-ordering information, because

the market for high-speed data services, in particular DSL-based services, is growing larger and more competitive every day.

62. An electronic ordering system should provide 24-hour on-line access to an ILEC database via a computer. Any CLEC trying to determine whether a customer's loop is suitable for DSL should be able within a few seconds to access information about the technical make-up of a particular customer's loop. Loop make-up information should identify equipment and technical characteristics associated with the loop. That information should include the following: the physical medium of the loop (*i.e.*, copper or fiber); loop length; the length and location of bridges taps; the loop wire gauge; and the presence of load coils, repeaters, DLC systems or DAMLs. This information resides in BA-NY's systems such as LFACS or TIRKS. ACI needs real-time, electronic mediated access to these existing systems. Such technical elements affect the usability of the loop, and in some instances may preclude the provision of DSL services. Therefore, ACI must have access to exact loop make-up information.

63. The BA-NY proposal gives CLECs access to a "pre-qualification loop database" through a Graphical User Interface ("GUI") on the World Wide Web or through EDI application-to-application interfaces. (JSA ¶ 206). Web GUI access does not provide a real-time means of obtaining loop information, and is cumbersome because it involves both delay and manual intervention. Access to the limited information BA-NY chooses to disclose about the loop is further constrained by BA-NY's own geographic and service deployment plans. For those loops not in the database—which includes any CO that BA-NY has not selected for its own deployment, or any loop with characteristics that differ from those of BA-NY's limited DSL service offering—BA-NY only offers access to the same limited information on a manual basis, which takes substantially longer once "ordered" by the CLEC. (JSA ¶ 208)

64. Such limited loop information fails to comport with the FCC's March *Advanced Services Order.* The FCC specifically required ILECs to "disclose to requesting carriers information with respect to the number of loops using advanced services technology within the binder and the type of technologies deployed on those loops."[8] This requirement builds on the earlier FCC requirement to provide competing carriers with the information necessary to formulate an accurate order for a customer, including "access to the information such systems contain."[9]

65. The Commission should require BA-NY to provide real-time access to its loop makeup information. If BA-NY does not currently have such a system in place, it should be required to develop the system within six months. Further, until BA-NY has a mechanized system in place, BA-NY should provide manual access to loop makeup information, and the information should be provided to ACI within 3-5 days of ACI's request, but in no event longer than the analogous loop make-up information interval applicable to BA-NY's retail DSL-based services.

NEED FOR COORDINATION AND STANDARDS

66. There are several engineering issues associated with deploying xDSL technologies on copper loops, including attenuation, crosstalk, transmission power, and loop length. A description of these issues is attached as EHG-5. As discussed below, however, these issues are all presently managed through design standards.

[8] *Advanced Services Order* ¶ 73.

[9] *Local Competition Order* ¶ 518; *Advanced Services MO&O* ¶ 56 n.103.

67. These engineering issues were foremost in the minds of telecommunications experts when the first modem data standard, ISDN, was developed.[10] As succeeding technologies, such as HDSL, ADSL, and others, were envisioned, the standards were again developed to be spectrally compatible with existing services assuming a "worst case" deployment in the presence of a maximum of potentially "disturbing" technologies. Line coding, power levels, spectral shaping, and other tools were used to assist in managing compatibility with other technologies in the same loop cable binder group. To ensure compatibility, long loops were defined with demanding crosstalk scenarios. Products meeting the standards have to be able to perform to the standards based on the assumption they are operating in these "worst case" environments. Therefore, with respect to each of the "engineering" issues identified in EHG-5, the present technologies already have been *designed* to ensure manageable interference.

68. As I will discuss below, issues of interference have been addressed through industry standards. Nevertheless, BA-NY contends that "spectrum management" guidelines will be imposed on carriers using unbundled loops to provide ADSL services. (JSA ¶ 204). BA-NY never discloses the nature of these guidelines, so it is difficult to ascertain what they entail, or whether they are necessary. As a general matter, however, ACI does not believe that they are necessary in the presence of current industry standardization activities. Furthermore, ACI never "concurred" that unilateral BA-NY spectrum management guidelines was necessary to resolve "technical issues." (JSA ¶ 203) Because it is unclear what BA-NY is proposing, I will discuss the various industry standards for DSL services in order to demonstrate that any "technical issues" are being adequately addressed and do not require imposition of BA-NY guidelines.

[10] ISDN was echo-cancelled to limit the frequency spectrum used. Care was taken to ensure operation and spectral compatibility in the presence of legacy services such as POTS, DDS, switched 56 kb/s service, self NEXT, and

69. The FCC's March *Advanced Services Order* properly distinguishes between spectrum compatibility and spectrum management. "Spectrum compatibility" concerns the range of technologies that can be deployed in the loop plant, while "spectrum management" concerns the deployment of services on a specific loop.[11] The FCC defines "spectrum compatibility" as "the ability of various loop technologies to reside and operate in close proximity while not significantly degrading each other's performance."[12] In contrast, "spectrum management" is defined to include "binder/cable administration as well as the broader issue of deployment practices (*e.g.*, the rules for testing and implementing xDSL-based and other advanced services)."[13] With regard to spectrum management, the FCC renounced the current practice of ILEC-specific measures that "vary from provider to provider and from state to state, thereby requiring competitive LECs to conform to different specification in each areas," in favor of "uniform spectrum management procedures."[14]

70. The FCC has recognized that standards should be set on a national basis, via industry consensus and not by individual ILECs.[15] The Telecommunications Act of 1996 opened up a new range of service choices to customers. National standards reached by industry consensus are needed to preserve this choice.[16] Internal requirements specified by an ILEC could be nothing more than anticompetitive protectionism based on business decisions as opposed to technical need. Indeed, the FCC was "persuaded by the record that allowing

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adjacent binder T-1.

[11] *See Advanced Services Order* note 151.

[12] *Id.* ¶ 61 (footnote omitted). "Proximity" is defined by the FCC as "in the same or adjacent binder groups." *Id.*

[13] *Id.* ¶71 (footnote omitted).

[14] *Id.*

[15] *Id.* ¶ 63.

[16] *Id.*

incumbent LECs such authority may well stifle deployment of innovative competitive LEC technology."[17]

71. Each xDSL technology is designed to co-exist with POTS and legacy-protected technologies above the voice band. Since a large amount of coordination has already been built into the design of the various xDSL technologies, any additional standards that may be needed to fill in gaps must be as limited as possible and should not favor one type of DSL technology over another.

72. There are several kinds of standards that are appropriately applied to xDSL technologies. Each xDSL standard was developed to be spectrally compatible with other xDSL technologies by controlling the power of the transmitted signal, spectral shaping, and placing limits on the out-of-band energy. PSD masks were developed to control the energy placed on the loop so that spectral compatibility could be managed.

73. The following national xDSL standards have been approved: T1.601 (Basic Rate ISDN/IDSL), TR28 (HDSL), and T1.413 (ADSL).[18] In addition, the T1E1.4 working group expects to complete its draft spectrum management standard, and issue it for ballot this summer.[19]

74. These standards will address all the relevant engineering issues associated with deployment of xDSL technologies. These standards address spectrum compatibility and spectrum management and provide a means to determine what technologies can be deployed. Although the current standards are voluntary, the FCC's March *Advanced Services* Order

[17] *Id.*
[18] *Id.* ¶ 67.
[19] In August, 1998, the FCC held a Spectrum Management Roundtable in Washington, D.C. to grapple with issues related to the FCC issuing a rule on this topic. The meeting sparked a lot of industry interest and resulted in renewed interest in T1E1.4 developing a spectrum management standard. Historically, the T1E1.4 standards process has been heavily influenced by the ILECs. After the roundtable, CLECs began attending and participating

specifically concludes "that incumbent LECs should not unilaterally determine what technologies LECs, both competitive LECs and incumbent LECs may deploy."[20]

75. Whether technologies are standardized or not has little bearing on how the technologies can be deployed. Rather, the purpose of the spectrum management standard in T1E1.4 is to manage the deployment of the various technologies in the market place. Any technology, whether standardized or not, should meet the spectrum management standard.

76. In its JSA, BA-NY properly looks to national standards to guide the deployment of various xDSL technologies in a manner that will lead to compatibility among new and "legacy" (existing) services. (JSA ¶ 204) However, the Affiants go on to state that BA-NY specific spectrum management guidelines "enable BA-NY to accelerate the roll out of . . . ADSL compatible unbundled loops." (JSA ¶ 204). This second statement does not necessarily follow from the first and indeed, ignores the FCC's recent decision addressing spectrum management for DSL services.

77. First and foremost, BA-NY presumes that it can and should implement "interim" technical spectrum management guidelines "pending adoption of industry standards." (JSA ¶ 204) It would be inconsistent with the consensus national standards approach, to allow any single entity, whether it would be an ILEC or a CLEC, to establish a binding technical publication, even on an interim basis. Furthermore, there is no need for separate BA-NY Guidelines because completion of the draft spectrum management is expected in June, 1999.

78. I also note that a BA-NY guideline is not required in order to qualify loops for xDSL service and to manage the loop plant. The national spectrum management standard I reference above will specify not only power and frequency for each spectrum management

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in T1E1.4. With this recent development, there is an expectation of building consensus among ILECs, CLECs and the vendors who serve both groups of carriers.

category, but will also provide deployment restrictions and loop assignment guidelines. The national spectrum management standard will also provide a method to determine the compatibility of new technologies that do not meet the specified spectrum management categories.

79. Until the national spectrum management standard is finalized, BA-NY should require compliance with the PSD mask in T1.413 for ADSL, or to the PSD masks for the other xDSL technologies that have been approved by the national standards process.[21] Thus, I recommend that this Commission preclude BA-NY from enforcing its Spectrum Guidelines to ensure that BA-NY does not unilaterally mandate technology specific requirements that are more restrictive than those developed in standards bodies. Otherwise, New York consumers will be denied access to the innovative services this Commission has sought to encourage.

BINDER GROUP MANAGEMENT

80. It is unclear what BA-NY means by "spectrum management guidelines." (JSA ¶ 204). The FCC included binder group administration in its definition of spectrum management and then reserved for itself the right to make further determinations in this area based on further comments. Although BA-NY's references are vague, another ILEC, SBC, has used spectrum management to mean binder group management.

81. Binder group management is used to restrict certain technologies from being in the same binder or adjacent binder as other technologies. The purpose of this restriction

[20] *Advanced Services Order* ¶ 63.

[21] During the interim period before the national spectrum management standard is completed, vendors may propose new technologies. If the technology proposed does not meet one of the approved PSD masks, the vendor or a carrier using such equipment should be able to obtain certification that such new technology is spectrally compatible with existing xDSL technologies.

is to ensure that the performance of the affected technology will not be overly reduced by the technology being restricted.

82. However, this Commission must realize that Binder Group Management for xDSL technologies has no technical justification, except for Alternate Mark Inversion ("AMI") T-1s. Binder group management has been used for AMI T-1a for years. This is for a very simple reason: AMI T-1s are an extremely interfering technology, and could only be deployed successfully if they were carefully deployed to manage that interference. The upstream and downstream T-1 signals impact each other so severely that they are required to be in non-adjacent binder groups. This means that there must be at least one binder between the binder containing the upstream signal and the binder containing the downstream signals. This method of management has worked well with T-1s because bundles of 25 pairs at a time are generally used. The loops in the 25-pair bundle are spliced in and out of an apparatus case that holds repeaters, every 3000 feet or so along the length of the loop, depending on loop gauge. This provides a natural barrier to other technologies being installed in the same binder. The industry has learned a hard lesson from AMI T-1s, and has progressed a great deal since the days of AMI T-1s. For this reason, the FCC concluded that ILECs should "to the fullest extent possible" work to remove AMI T-1s.[22]

83. Except for AMI T-1s, use of binder group management for xDSL technologies is unnecessary. All high-bandwidth xDSL technologies developed since the deployment of AMI T-1s have been intentionally designed to coexist harmoniously with other data and POTS services, *without* a need for the special treatment required by AMI T-1s. Therefore, neither ISDN/IDSL, HDSL, ADSL or SDSL requires spectrum management. ISDN was designed to be deployed throughout the existing loop plant for all ILECs. The legacy loop

plant was designed under the Resistance Design Rules that have been in effect as Bell System/BellCore rules for many decades. These rules limit the maximum length for unrepeatered ISDN to about 18,000 feet, because that is the loop length that will not require load coils for POTS. This is the same loop length that is the design maximum for ADSL at 1.5 Mbps downstream. ISDN can also be extended far beyond 18,000 feet by the use of Digital Loop Carrier ("DLC"), *without* requiring any "spectrum management" and *without* creating harmful interference for POTS or other data services deployed within standards specifications.[23]

84. Second, use of binder group management for other technologies would be inefficient, expensive, and difficult to maintain. The ILEC usually reinforces a cable route only after most of the pairs (usually 90%) have working lines. By using different binders for different services, a special burden would be placed on the loop assigner and the outside plant engineer to provide loops for different types of services while maintaining an adequate supply of vacant pairs in each type of binder. The Binder Group Management process has not been implemented by any ILEC except SBC, and was specifically rejected by Bell Atlantic. Indeed, in the last T1E1.4 meeting, Bell Atlantic submitted documentation urging that binder group segregation is not feasible was presented (this document is attached to as EHG-6). Nearly every other ILEC present agreed with Bell Atlantic. The working group agreed in principle that the spectrum management standard will not require or assume binder group segregation to achieve spectral

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[22] *Advanced Services Order* ¶ 74.

[23] Regenerated, or repeatered, 4-wire HDSL is a different story entirely. Unrepeatered HDSL was designed to work on any Carrier Serving Area designed loop without the need for special spectrum management rules. 4-wire HDSL was designed to be limited to a reach of 9,000 feet on 26 gauge cable, or 12,000 feet on 24 gauge cable. Any extension of 4-wire HDSL beyond these design maximums by the use of regenerators or repeaters is not specified in the HDSL technical report or in the ITU standard and violates the design premise for ADSL in ANSI T1.413. In fact, this beyond-standards deployment of repeatered HDSL can cause significant unplanned-for interference (crosstalk) with other data services, because a very strong (regenerated) data signal is being introduced far out in the loop plant, just as the signals for other nearby data services are attenuating, or losing strength, because of the distance they have already traveled. Indeed, this interference is the very reason that use of repeatered HDSL is not specified in the standards.

compatibility, with the exception of T-1 Carrier. Therefore, to the extent that BA-NY intends to impose Binder Group Management on CLECs through its undefined "spectrum management guidelines" such guidelines are not only unnecessary and anticompetitive, but inconsistent with the position Bell Atlantic has taken in industry standards forums.

"HARMFUL" INTERFERENCE

85. I am puzzled and troubled by references in the BA-NY JSA suggesting that its spectrum management guidelines are necessary to "ensure the integrity of the network for all carriers." (JSA ¶ 204). BA-NY also obliquely refers to "unresolved technical issues" and the fact that "much work remains to be completed" with respect to xDSL services. (JSA ¶ 203) It uses these vague inaccuracies to support its subsequent assertion that its unidentified "guidelines" are necessary to "address one of the many of the technical issues that needed to be addressed prior to the roll out of xDSL technology based services." (JSA ¶ 204) These statements inappropriately invite the conclusion that DSL poses some possibility of "harm" to the public switched telephone network ("PSTN"). As discussed above and in EHG-5, the engineering issues associated with provision of xDSL services are appropriately addressed by industry standards. Therefore, I wish to dispel any notion the Commission may have of a risk of "harm" to the network that could justify additional guidelines as suggested by BA-NY.

86. "Switched" traffic, as included in the term PSTN, refers to voice grade POTS. That is, the traffic that is being referred to is the *switched* traffic that transits BA-NY's and other carriers' switches and the network of circuits between such switches. xDSL-based data traffic, however, whether carried by CLECs or BA-NY, is *not* switched at the BA-NY end office. Instead, it is split off from circuit-switched traffic at the CLEC or BA-NY DSLAM in the central office before it reaches the switch, and is carried on separate trunk groups via a separate

packet-switched network. Thus, there is no interaction between xDSL-based services and POTS in carrier switches and networks. Indeed, removing xDSL data signals from the PSTN actually tends to increase the reliability of the PSTN, because it reduces the demand placed upon the circuit switching equipment and interoffice facilities.

87. In addition, the only portion of the BA-NY network in which POTS and xDSL-based data services are in proximity to each other in a manner that *might* cause interference with POTS, is the loop between the serving central office and the customer's premises. However, such *potential* for harmful interference was dealt with long ago by the FCC, when it established its Part 68 Rules. *All* telecommunications equipment, including xDSL equipment, must comply with the provisions of Part 68 *before* it can be deployed.[24] Harmful interference between xDSL and POTS is therefore precluded. Indeed, more recently the FCC concluded in its March Advanced Services Order that DSL technologies, such as those discussed above "can be connected to the public switched telephone network with reasonable confidence that this technology will not significantly degrade performance of other advanced services and with the reasonable confidence that this technology will not impair traditional voice band services."[25] Accordingly, there is no basis for an implication that DSL poses a threat to POTS or the PSTN.

xDSL LOOP RATES

88. BA-NY concedes that it has not "presented any rate proposals on xDSL compatible loops," but that it "will follow all applicable pricing guidelines relating to the conditioning and pricing of xDSL compatible loops." (JSA ¶ 214)

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[24] Moreover, equipment manufacturers take very seriously their responsibility to produce equipment that takes full account of the existence of legacy services in the loop plant. Indeed, other manufactures are careful to design their equipment specifically to avoid harmful interference with POTS and the PSTN. *See DSL Sourcebook*, Attachment EHG-3, at Chapter 3

89. xDSL services require precisely the same loop that supports traditional voice telephony. There is no technical difference between the clean copper loops required for voice and those necessary for DSL service. Thus, no basis exists for a difference in price between these facilities. Therefore, BA-NY UNE loop rates for xDSL-based services should not be greater than the UNE loop rate for two-wire analog loops, which is a voice grade copper loop. These rates should be uniform and governed by TELRIC cost-based pricing principles, including loop deaveraging. All BA-NY UNE loops rates must comply with TELRIC cost-based principles.

90. Likewise, any charges for "conditioning" loops must be based on forward-looking TELRIC costs. Since forward looking DSL loops would be "clean" copper, charges associated with "conditioning" would be nominal. Accordingly, any appropriate charges for removal of interfering equipment must be charged on a nonrecurring basis. In addition, CLECs must not be charged for removal of nonstandard equipment that BA-NY may have placed on the line.

COPPER LOOP PROVISIONING INTERVALS

91. ACI soon will be competing with BA-NY in the DSL market. Therefore, in order to meet the expectations of our customers, ACI must be able to obtain and provision copper loops from BA-NY at least as quickly as they are provided to BA-NY's retail arm. Since copper loops provisioned for DSL are technically indistinguishable from other UNE loops, BA-NY should be required to provision those loops within the standard interval for UNE loops. According to the CLEC handbook, analog loops are provisioned within five (5) business days. However, if BA-NY is able to shorten the due date interval for loops supporting its DSL retail

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[25] *Advanced Services Order* ¶ *66; see also id.* at n. 166.

product, then the due date for CLECs must be reduced to correspond with the retail service interval.

92. The loop provisioning interval becomes critical in light of the extended time BA-NY takes to provide collocation to CLECs. When ACI first began negotiations with BA-NY, BA indicated that it had no set date for deployment of retail DSL. Before ACI can order a loop for DSL services, it must first obtain collocation from BA-NY. Because BA-NY provisioning intervals for collocation are lengthy and because BA-NY is not subject to the requirement of collocation for its own retail service provisioning, in the time that ACI has been waiting for BA-NY to complete ACI's collocations, BA-NY has been gearing up for a large scale June rollout its InfoSpeed™ DSL service in New York. Thus, BA-NY has successfully used its control over collocation to delay ACI's entry and mitigate any crucial "first in" competitive advantage. Therefore, BA-NY must not be permitted to further slow ACI's provision of DSL services to New York consumers through protracted loop provisioning intervals.

93. Where loops require one-time "conditioning" to remove interfering load coils, bridged taps, repeaters, BA-NY should be required to provide loops in the same interval as loops requiring a dispatch, but in any event no more than seven days. Furthermore, there is absolutely no basis for excluding BA-NY's performance in the provisioning of these loops in BA-NY's performance measurements as BA-NY repeatedly suggests. (JSA ¶¶ 212-213)

94. BA-NY must be required to provision xDSL loops within no more than the UNE loop interval of five (5) business days. "Conditioned" loops should be provided within 7 days, or within the same interval such loops would be provided to BA-NY's retail unit,

whichever is shorter. Further, BA-NY's performance in provisioning xDSL loops, whether "conditioned" or not, should be reported in its performance measurements.

I hereby swear, under penalty of perjury, that the foregoing is true and correct, to the best of my knowledge and belief.

/s/ Eric H. Geis

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