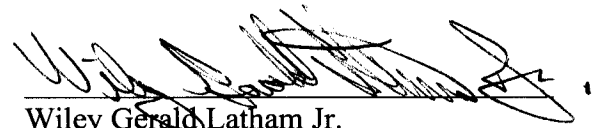


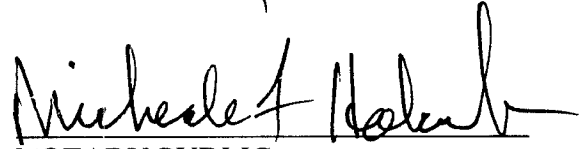
STATE OF Georgia
COUNTY OF Kulton

BEFORE ME, the undersigned authority, duly commissioned and qualified in and for the State and County aforesaid, personally came and appeared Wiley Gerald Latham Jr., BellSouth Telecommunications, Inc., being by me first duly sworn deposed and said that:

He is appearing as a witness before the Kentucky Public Service Commission in "Investigation Concerning the Propriety of InterLATA Services by BellSouth Telecommunications, Inc. Pursuant to the Telecommunications Act of 1996," KY PSC Case No. 2001-105, and if present before the Commission and duly sworn, his direct testimony would be set forth in the annexed transcript consisting of 18 pages and 5 exhibit(s).


Wiley Gerald Latham Jr.

SWORN TO AND SUBSCRIBED BEFORE ME this
15th day of May, 2001.


NOTARY PUBLIC

MICHEALE F. HOLCOMB
Notary Public, Douglas County, Georgia
My Commission Expires November 3, 2001

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BELLSOUTH TELECOMMUNICATIONS, INC.
DIRECT TESTIMONY OF WILEY (JERRY) G. LATHAM
BEFORE THE KENTUCKY PUBLIC SERVICE COMMISSION
CASE NO. 2001-105
MAY 16, 2001

Q. PLEASE STATE YOUR NAME AND YOUR JOB RESPONSIBILITIES.

A. My name is Jerry Latham. I am the Project Manager for Unbundled Loops within the Interconnection Services unit of BellSouth Telecommunications, Inc. ("BellSouth"). I am responsible for Product Development and Product Management for unbundled loops and other unbundled network elements in BellSouth's nine-state territory.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of this testimony is to explain the nondiscriminatory processes and procedures through which Competitive Local Exchange Companies (CLECs) pre-order and order BellSouth's xDSL-capable (Digital Subscriber Line) loops. I will identify the attributes of BellSouth xDSL-capable loops and describe the process through which CLECs order and BellSouth provisions xDSL-capable loops. I will also demonstrate that these processes provide CLECs a meaningful opportunity to compete in the DSL market place.

1 UNBUNDLED xDSL AND IDSL CAPABLE LOOPS

2

3 Q. WOULD YOU GIVE A GENERAL DESCRIPTION OF THE VARIOUS
4 TYPES OF DSL LOOPS OFFERED BY BELLSOUTH?

5

6 A. The viability of DSL services is dependent, in part, on the end user's
7 distance from his serving wire center (SWC), as well as the length,
8 gauge, and status of the copper that serves that customer. To
9 compensate for these parameters, BellSouth offers CLECs a variety of
10 unbundled loops that may support DSL services from the CLEC to its
11 end user customers. The loops are known as "ADSL¹ Capable loop,"
12 "HDSL² Capable loop," "ISDN loop," "Unbundled Digital Channel
13 (UDC)," "Unbundled Copper Loop (UCL), Short and Long" and
14 "Unbundled Copper Loop – Non Designed" (UCL-ND).

15

16 Q. WHICH OF THE XDSL LOOPS OFFERED BY BELLSOUTH ARE THE
17 MOST VERSATILE?

18

19 A. The most versatile of BellSouth's xDSL-capable loops are the
20 Unbundled Copper Loops-Short and Long ("UCL"). These loops were
21 designed to meet CLEC requests for a basic copper loop.

22

23 Q. PLEASE DESCRIBE THE UCL LOOPS OFFERED BY BELLSOUTH.

24

25 ¹ ADSL stands for Asymmetrical Digital Subscriber Loop.

² HDSL stands for High Bit Rate Digital Subscriber Line.

1 A. Unbundled Copper Loop (UCL) - Short - The UCL-Short is a 2-wire or
2 4-wire loop that provides a non-loaded or “clean” copper pair to an end
3 user using the Resistance Design (RD) industry standard. Under the
4 RD standard, these loops may be up to 18,000 feet long and may have
5 up to 6,000 feet of bridged tap (“BT”) exclusive of the loop length. In
6 other words, a UCL-Short loop can be 18,000 feet long and have up to
7 6,000 feet of BT. BellSouth cannot guarantee that CLEC-provisioned
8 DSL service will function properly over the UCL-Short loop, as the
9 physical characteristics (length and BT) may be inconsistent with the
10 maximum distance for many DSL services and equipment. BellSouth
11 will, however, verify that these loops have no more than 1300 ohms of
12 resistance, electrical continuity, and balance relative to the tip-and-ring,
13 and will maintain them to these requirements.

14
15 BellSouth developed the UCL-Short in direct response to CLEC
16 requests for an unbundled loop with the same specifications that
17 BellSouth uses for its own wholesale ADSL service. This loop meets
18 those criteria. The UCL-Short has been available to CLECs since the
19 second quarter 2000.

20
21 Unbundled Copper Loop (UCL) - Long - The UCL-Long is a 2-wire or
22 4-wire copper loop that is longer than 18,000 feet. This loop was
23 developed in response to CLEC requests, as well as the UNE Remand
24 Order’s directive that ILECs should provide xDSL-capable loops

25

1 wherever requested by the CLEC.³ Normal telephony standards dictate
2 that all copper loops exceeding 18,000 feet in length must be loaded to
3 properly service dial-tone or POTS type customers. Therefore, in
4 almost all cases, a CLEC seeking to provide functioning DSL service
5 will need, in addition, to place an order for "loop conditioning" -
6 BellSouth's Unbundled Loop Modifications (ULM) product - to remove
7 the load coils and/or BT from these loops in order to transform them
8 into "dry" or "clean" copper loops. The CLEC would pay the ULM costs
9 separate from the cost of the loop itself.

10

11 By the end of February 2001, BellSouth had received orders for and
12 deployed 10,337 UCL Short and Long loops region-wide and 240 in
13 Kentucky.

14

15 Q. WHAT OTHER TYPES OF XDSL LOOPS ARE OFFERED BY
16 BELLSOUTH?

17

18 A. In addition to the UCL-Short and Long, BellSouth offers CLECs four
19 other xDSL-capable loops: ADSL-capable loop; HDSL-capable loop;
20 ISDN-capable loop; and Universal Digital Channel ("UDC") loop.

21

22 Q. CAN YOU BRIEFLY DESCRIBE THE HISTORY OF THE
23 DEVELOPMENT OF THESE OTHER TYPES OF LOOPS?

24

25 ³ *In the Matter of Implementation of the Local Competition Provisions of the
Telecommunications Act of 1996*, Third Report and Order and Fourth Notice of Proposed
Rulemaking, Docket No. 96-98, 15 FCC Rcd 3696, at 3783-3784, ¶191 (1999).

1

2 A. Yes. BellSouth developed two of these xDSL-Capable loop offerings,
3 the HDSL-capable loop and the ADSL-capable loop, in direct response
4 to the FCC's Local Competition Order. That Order defined loops to
5 include "two-wire and four-wire analog voice-grade loops, and two-wire
6 and four-wire loops that are conditioned to transmit the digital signals
7 needed to provide services such as ADSL, HDSL and DS1-level
8 signals."⁴

9

10 Q. PLEASE DESCRIBE THE HDSL AND ADSL LOOPS.

11

12 A. HDSL-Capable Loop – For technological reasons, high-speed DSL
13 services work best on short, clean-copper loops. BellSouth's HDSL-
14 capable loop meets these requirements. BellSouth screens HDSL-
15 capable loops to ensure that they meet stringent industry standards for
16 Carrier Serving Area (CSA) transmission specifications to better
17 support DSL services. Under these strict technical standards, the end
18 user must be served by non-loaded copper and the loop typically
19 cannot be more than 12,000 feet long. If 26-gauge copper is used, the
20 limit is 9,000 feet or less. HDSL-Capable loops may have up to 2,500 ft
21 of BT, and 850 ohms or less of resistance.

22

23 The HDSL-capable loop has been available to CLECs since fourth

24

25 ⁴ *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*,
First Report and Order, ¶ 380, 11 FCC Rcd 15499, ¶380 (1996).

1 quarter 1996. By the end of February 2001, BellSouth had deployed
2 457 HDSL-capable loops region-wide, of which 1 is in Kentucky.

3

4 ADSL-Capable Loops – Originally, the ADSL loop offering was set to
5 the same CSA criteria as the HDSL-capable loop. In response to
6 CLEC requests, however, and with the establishment of industry
7 guidelines for loop types that support ADSL service, BellSouth modified
8 the design criteria for the ADSL-capable loop in the first quarter 2000 to
9 the Revised Resistance Design (RRD) standards. RRD standards
10 require a non-loaded copper loop, up to 18,000 feet in length, with up
11 to 6,000 ft of BT inclusive of loop length, and 1300 ohms or resistance.
12 “Inclusive of loop length” means that for every foot of BT, the loop
13 length is reduced by an equal amount. Therefore, a RRD loop that has
14 4,000 ft of BT could be no longer than 14,000 ft.

15

16 This loop has been available to CLECs since fourth quarter 1996. By
17 the end of February 2001, BellSouth had provided CLECs 13,261
18 ADSL-capable loops region-wide, of which 346 are in Kentucky.

19

20 Q. PLEASE DESCRIBE HOW BELLSOUTH CAME TO DEVELOP THE
21 ISDN-CAPABLE AND UDC LOOPS.

22

23 A. As with the ADSL and HDSL loops mentioned above, the ISDN-
24 capable loop was developed in response to the release of the Local
25 Competition Order. However, as described below, the ISDN loop is not

1 always suitable for Integrated Digital Subscriber Line (IDSL) services.
2 Therefore, the CLECs requested that BellSouth provide a loop that
3 could support the hybrid form of DSL service known as IDSL. In
4 response to these requests, BellSouth developed the UDC loop.

5

6 Q. PLEASE DESCRIBE THE ISDN-CAPABLE AND UDC LOOPS.

7

8 A. ISDN-Capable Loops – While not intended for xDSL use, ISDN-
9 capable loops may be used to support the DSL service known as IDSL.
10 BellSouth provisions its ISDN-capable loops according to applicable
11 industry standards (i.e., ANSI), which means they may be provisioned
12 over copper or via a Digital Loop Carrier (DLC) system. These loops
13 are free of load coils, but are not referred to as "clean copper loops"
14 because they may be provisioned via DLC systems that are completely
15 compatible with ISDN service, but not most xDSL services.

16

17 Q. PLEASE DESCRIBE UDC LOOPS.

18

19 A. UDC Loops - As recognized by the FCC, not all ISDN loops are
20 completely compatible with IDSL service. Because of this, BellSouth
21 developed the UDC loop, which was introduced on May 31, 2000. This
22 loop is identical to the ISDN loop, but is provisioned in a manner that
23 supports "data-only" ISDN, which will better meet the needs of CLECs
24 who want to deploy IDSL. This loop has been available to CLECs
25 since June 1, 2000. By the end of February 2001, BellSouth had

1 provided CLECs 6,988 UDC loops region-wide, of which 194 are in
2 Kentucky.

3

4 Q. IS BELLSOUTH DEVELOPING ANY OTHER TYPE OF XDSL LOOP?

5

6 A. Yes. At the request of CLECs, BellSouth has developed another xDSL-
7 capable loop. This loop is known as the Unbundled Copper Loop –
8 Non Designed (UCL-ND). It is a non-loaded copper loop that generally
9 has 1300 ohms or less of resistance and does not have a specific
10 length limitation. The length is driven by many factors but is generally
11 less than 18,000 feet long. This loop does not go through the “design”
12 process. Therefore, it does not have a remote access test point and
13 does not come standard with a Design Layout Record (DLR). This loop
14 was developed to respond to the CLECs’ desire for an xDSL loop with
15 a lower non-recurring cost.

16

17 Q. WHY DOES BELLSOUTH OFFER SO MANY TYPES OF XDSL
18 LOOPS?

19

20 A. To understand why BellSouth offers a variety of xDSL loops, one need
21 only review the history of xDSL-capable loops. BellSouth has
22 developed this variety of xDSL loop types in direct response to CLEC
23 requests as well as the evolving scope of its obligations under
24 applicable FCC rules and regulations. As described above, BellSouth
25 first developed the HDSL and ADSL-capable loops to comply with the

1 obligations stated in the Local Competition Order. Once developed,
2 these loops were included in CLEC interconnection agreements. In the
3 months following the release of the Local Competition Order, BellSouth
4 developed several additional xDSL loop offerings at the request of
5 CLECs operating within BellSouth's region. Again, BellSouth's
6 obligation to provision these loops was memorialized in various
7 interconnection agreements. These continuing contractual obligations
8 for all of the loop types make it impossible for BellSouth to discontinue
9 any xDSL loop; rather, as BellSouth develops new product offerings,
10 BellSouth simply adds to the list of options from which the CLEC can
11 choose.

12

13 The benefit to the CLECs of this historical growth of offerings is that
14 CLECs have a variety of loop types from which they can choose to best
15 meet their technical needs in providing telecommunications services to
16 its customers for the least cost. The fact that BellSouth offers different
17 loop types, however, does not in any way restrict a CLEC's ability to
18 offer any particular type of xDSL service it may desire over any loop in
19 BellSouth's network. Indeed, the only restrictions that limit a CLEC's
20 choice of DSL technologies are those established by industry standards
21 bodies to ensure the integrity of voice service.

22

23 Q. HAS BELLSOUTH ENTERED INTO INTERCONNECTION
24 AGREEMENTS WITH FACILITIES-BASED CLECS THROUGH
25 WHICH IT IS PROVIDING THESE XDSL CAPABLE LOOPS?

1

2 A. Yes. BellSouth has entered into interconnection agreements with
3 facilities-based carriers in Kentucky to provide each of the loops
4 described above, with the exception of the UCL-ND, which is currently
5 being negotiated with several CLECs. See e.g. Interconnection
6 Agreement between BellSouth and COVAD Company, approved by the
7 Kentucky Commission on January 26, 1999, Att. 2.

8

9 Q. WHERE CAN YOU FIND MORE INFORMATION ON THESE TYPES
10 OF LOOPS?

11

12 A. Additional information about all of BellSouth's xDSL loops can be
13 viewed in Exhibits 1 through 5 to my testimony and on BellSouth's
14 internet web site at:

15 ["www.interconnection.bellsouth.com/products/unes.html"](http://www.interconnection.bellsouth.com/products/unes.html).

16

17 Q. CAN YOU SUMMARIZE THE TYPES OF AVAILABLE LOOPS AND
18 THEIR CHARACTERISTICS?

19

20 A. Yes. The HDSL capable loop (using CSA standards) will provide clean
21 copper pairs to customers up to 12,000 feet from the Central Office
22 (CO).

23

24 The ADSL capable loop (using RRD standards) and the UCL-Short
25 (using RD standards) will provide clean copper pairs to customers up to

1 18,000 feet from the CO (using different criteria for BT).

2

3 The UCL-Long, in conjunction with the ULM conditioning product,
4 allows CLECs to serve customers beyond 18,000 feet from the CO
5 using clean copper pairs.

6

7 The ISDN and UDC capable loops will give the CLEC the option of
8 providing IDSL service to any customer even if that customer does not
9 have clean copper pairs available at their address.

10

LOOP TYPE	UDL – HDSL	UDL – ADSL	UCL Short	UCL Long	UCL – ND	ISDN/UDC
Max loop length	12 kft	18 kft	18 kft	Unlimited	Undefined (generally 18kft)	18 kft (Copper) No limit (DLC)
Max total bridge tap	2.5 kft inclusive	6 kft inclusive	6 kft exclusive	12 kft exclusive	6 kft exclusive	6 kft inclusive
Longest single Bridge tap	2.0 kft	6 kft	6 kft	6 kft	6 kft	6 kft
Max Resistance in Ohms	850	1300	1300	2800	1300	1300 (copper)
Max Loss (per 73600)	35db@100KHz	42db@40KHz	46db@40KHz	N/A	Varies (Similar to UCL-Short)	42db@40KHz
Service Inquiry Required	Yes	Yes	Yes	Yes	No	No
Number of wires	2 or 4 wire	2 wire	2 or 4 wire	2 or 4 wire	2 wire	2 wire

21

22 The chart above shows the technical specifications for each of
23 BellSouth's xDSL-capable loops. BellSouth developed each of these
24 loops, to the extent possible, in accordance with industry standard
25 physical characteristics and specifications. Application of these

1 standards allows BellSouth to provision, maintain and repair these
2 loops efficiently while retaining network integrity for all of BellSouth's
3 services, including non-DSL services. If, however, a CLEC wants other,
4 non-standard loop types, BellSouth will work cooperatively with the
5 CLEC to develop these through our interconnection agreement
6 negotiation sessions (as we have done for the UCL-Short) or through
7 the Bona Fide Request (BFR) process.

8

9 PRE-ORDERING / ORDERING PROVISIONING

10

11 Q. WOULD YOU PLEASE DEFINE AND DESCRIBE LOOP MAKE-UP
12 INFORMATION?

13

14 A. "Loop make-up information" ("LMU") refers to the detailed information
15 regarding a given loop's physical characteristics that an interested
16 CLEC can use to determine the feasibility of provisioning xDSL service
17 to a particular end user customer. This information includes: loop
18 length, wire gauge, loop medium (copper or fiber), and information
19 regarding any bridged tap, load coil, or repeaters present on the loop.
20 Through the manual processes discussed in this testimony, BellSouth
21 provides CLECs access to all of the loop makeup information available
22 to BellSouth personnel.

23

24 BellSouth has developed a loop qualification process that enables a
25 CLEC to access loop make-up information via manual or electronic

1 interfaces. Manual loop qualification is available when BellSouth's
2 electronic records do not have LMU about a particular loop. With this
3 information in hand, CLECs can determine whether and what type of
4 xDSL service can be provisioned over the loop facilities that serve their
5 prospective customers. Electronic access to loop make-up information
6 is addressed in the testimony of Mr. Ronald M. Pate. The process for
7 providing loop make-up information on a manual basis is described
8 below.

9

10 Q. WHAT IS THE PROCESS FOR OBTAINING LOOP MAKE-UP
11 INFORMATION MANUALLY?

12

13 A. The manual loop make-up process is as follows: the CLEC initiates the
14 manual loop make-up process by submitting a request for loop make-
15 up information either to its account team (AT) or the Complex Resale
16 Support Group (CRSG). A copy of the form provided to CLECs for
17 their use in ordering is attached as Exhibit 4 to my Testimony. The
18 CRSG/AT forwards the request to the appropriate Service Advocacy
19 Center (SAC) depending upon the end user's address. The SAC will
20 physically look through BellSouth's Central Office (CO) records to
21 gather the loop make-up information. The SAC sends the loop make-
22 up information, which includes information such as the length and
23 gauge of cable, number of load coils (LC), and the length and gauge of
24 BT, back to the CRSG/AT. The CRSG/AT sends the loop make-up
25 information to the CLEC, who is then in a position to determine

1 whether, and what type of, xDSL services it can offer over the available
2 facilities.

3

4 If the CLEC makes the decision to provide service using the facility but
5 needs to have the loop conditioned, it can use BellSouth's Unbundled
6 Loop Modification (ULM) process in order to modify any existing loop to
7 be compatible with each CLEC's particular hardware requirements.

8 The ULM process conditions the loop by the removal of any devices
9 that may diminish the capability of the loop to deliver high-speed
10 switched wireline capability, including xDSL service. Such devices
11 include, but are not limited to load coils, bridged taps, low pass filters,
12 and range extenders. The ULM offering provides for removal of
13 equipment on loops equal to or less than 18,000 feet, as well as loops
14 that are longer than 18,000 feet. These devices are placed on copper
15 loops to enhance the voice characteristics when provided on long
16 copper facilities or to otherwise comply with standards for other
17 services such as PBX trunks. The CLEC may select the level of line
18 conditioning it desires and will be required to pay only for the level of
19 conditioning it selects. BellSouth will provide line conditioning on a
20 CLEC request for unbundled loops, whether or not BellSouth offers
21 advanced services to the end-user customer on that loop. BellSouth
22 has established cost-based rates for the ULM offering.

23

24

25 ORDERING

1

2 Q. PLEASE DESCRIBE THE MANUAL AND ELECTRONIC ORDERING
3 PROCESSES FOR XDSL CAPABLE LOOPS.

4

5 A. The manual ordering process for xDSL and IDSL capable loops is
6 virtually identical to the manual ordering processes and procedures for
7 other loop types. This process is described in the testimony of
8 Mr. Ken Ainsworth.

9

10 BellSouth's electronic pre-ordering and ordering interfaces have been
11 enhanced to provide electronic access to loop makeup information and
12 electronic ordering of ADSL-capable loops, HDSL-capable loops, and
13 UCLs. For further information, see the testimony of Mr. Pate on
14 Operations Support Systems.

15

16 PROVISIONING AND TESTING

17

18 Q. WHAT INTERVALS HAVE BEEN ESTABLISHED FOR THE
19 PROVISIONING OF XDSL CAPABLE LOOPS?

20

21 A. BellSouth has established intervals for the provisioning of DSL loops
22 and supporting services. The provisioning interval for the xDSL loop is
23 7 business days. The interval for manual Loop-Make Up is 3 business
24 days.

25

1 Due to the widely varied configurations for loop deployment, BellSouth
2 has established target intervals for loop conditioning on the following
3 basis:

4 Removal of 1 – 3 intervening devices

5 Aerial Plant = 10 days

6 Buried Plant = 15 days.

7 Underground Plant = 30 days

8

9 Q. WHAT TYPES OF TESTING ARE PERFORMED ON UNE LOOPS,
10 INCLUDING XDSL CAPABLE LOOPS?

11

12 A. During the installation of UNE loops, BellSouth performs tests
13 necessary to ensure that the loop being provisioned meets the
14 specifications for the loop type ordered by the CLEC. In addition,
15 BellSouth has agreed to provide Additional Cooperative Acceptance
16 Testing. This cooperative testing provides the CLECs with a means to
17 test loops beyond those tests that BellSouth normally performs during
18 the provisioning process.

19

20 In addition, through the negotiation of interconnection agreements,
21 BellSouth and the CLECs have established joint provisioning
22 procedures for xDSL loops. See Interconnection Agreement between
23 BellSouth and COVAD, approved by the Kentucky Commission
24 January 26, 1999, Att. 2, § 2. These joint procedures allow BellSouth
25 and the CLEC to be actively involved in the testing and provisioning of

1 UNE loops throughout the provisioning process. This helps ensure that
2 the circuit works properly for the CLEC's intended service from the first
3 day that the circuit is activated to the end user.

4
5 So far as it is technically feasible, BellSouth will perform a broad range
6 of tests on conditioned loops for all of the line's features, functions and
7 capabilities, and does not limit its testing to voice-grade tests.

8

9 SPECTRUM MANAGEMENT

10

11 Q. PLEASE DESCRIBE SPECTRUM MANAGEMENT.

12

13 A. CLECs are free to provide any telecommunications service they choose
14 on any unbundled loop, as long as that service does not negatively
15 impact other services and providers. BellSouth's TR73600 document
16 and other industry standards for Power Spectral Density masks, once
17 established, will help control these negative impacts and allow multiple
18 carriers' services to co-exist harmoniously. BellSouth provides CLECs
19 access to TR73600 via BellSouth's internet website. It should be
20 noted, however, that BellSouth cannot be expected to guarantee a
21 CLEC's service will work on loops not intended for a particular service.
22 For example, a CLEC may order a voice-grade loop and attempt to put
23 some type of high-speed data service on that loop. If that service
24 works (without disrupting other services), then all is well. If not,
25 BellSouth can only maintain and repair the circuit as a voice-grade line

1 (i.e., the type of loop ordered). Of course, the CLEC would have the
2 option to replace the voice grade line with an xDSL-capable loop, and
3 could use the ULM product to condition the loop to support the CLEC's
4 chosen service.

5

6 Currently, efforts are underway at the national level to adopt standards
7 that minimize the potential for interference when loops adjacent to one
8 another in a binder group are used to provide divergent technologies
9 (e.g., ADSL and HDSL). National standards bodies are working
10 towards establishing industry consensus on how best to accommodate
11 xDSL-based services on a wireline network originally designed to carry
12 voice transmissions. BellSouth strongly supports this effort and is
13 involved in the national standards bodies working on these issues.

14

15 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

16

17 A. Yes.

18

19

20

21

22

23

24

25