

ANALOG CALLS

COMPACT at TTY

nationsbank bowietty line. mand here. howcan i help you? ga hello this is mabel yzinski. i am haing a problem with my chgking account the acct nbr is 1a2b3c4d it says i only have 34 dollars ai know i have at leastpkpvwv dolcflga hello ms. cyzinski, fist i need to ask you your address06974 9:8) 3:;6 ,7mpl your mother's aiden name. -- 9(.6-S? 8 1234567890 heather drive in albuquerque, md my p is 987 654 3210 my other .-8\$0 ,-.3 8 14-/kenstein ga my ecords for your checking accou5 -6 "insufficient funds" and ticno checklwas deposited on3 \$3.. a

nationsbank bowie tty lie. mandy here. how can i help you? ga he this is mabejski. i am having a problem with my checking account the acctar is 1a2b3c4d it says i only have 34 dollars in it but i know i have at least 729.22 dollars ga hello ms. cyzinski, first i ned to ask you your address, your social squrity number and youother's maiden name. ga ok my address is kqcvio heather drive in accpquerque, md my sn is 987 94 3210 my other's maiden name is franstein ga my rds for your checking account say "insuficient funds" and the last check was deposited on 3 dec. ga

COMPACT at 300 bps

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ANALOG CALLS

NXI MODEM at TTY

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DIGITAL CALLS

COMPACT at TTY

SBit Baud+

natiojvbk bowie ty line.0-,\$6=343. how can i elp you?+- =3)?9
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natiojvbk bowie ty line.0-,\$6=343. how can i elp you?+- =3)?9
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COMPACT at 300 bps

7 Bit Ascii

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it bti know jety!ap l ast 7?&|2?dollars ga hello ms. cyzilsoa!
firrp ?} ?zqed to ask you your address, your social security nber and
your mother's maiden name. ga ok my addr_tss is 1234567890 heather
drive i& albuquerque, md my ssn is 987 654 3210n my other's aiden
name is frankensein ga my records for your checking aczunt say
"insufficient funds" and the last check was deposited on 3 dwh. ga

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ga hello this is mabel cyzy cki. i am having a problem with my
checking !account the acct nbr is 1a2b3c4d it says i only have 34
dollars in it but i know_z have at least 729.22 dollars ga hello ms.
cyzinski, fir|i#z need to ask you your address, your social security
number and your mother's maiden nam_p ga ow!my ad hess is 1234567890
heather drive in albuquerque, md \my ssn is 987 654 3 10 my other's
maiden name is frankenstein ga m {records for your checking account
say "in;ufficient funds" and the last check was de}osited on 3 dec. ga

DIGITAL CALLS

VXI MODEM at TTY

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(,91: =-;(,75=)-5 72..2blafvgblo m cyzimfki, 8 xirstwneek to
ask yo gour adkres0 yourlfocicqurwty nuber and yokr other's
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VXI MODEM at 300 bps

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this is mabel cyzinski. i am having a problem with my checking account
the acct nbr is 1a2b3c4d it says i only have 34 dollars in it but i know
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**Joint Task Force
Working Group 1/3
TTY Test Procedure Proposal
28 January, 1998
Author: W. Wesley Howe**

Purpose: The test described herein has been designed to evaluate the through error rate of 45.45 baud baudot Teletype (TTY) used for Telecommunications Devices for the Deaf (TDD) over cellular telephone links. The test can be performed on traditional telephone as well as the primary targets, analog and digital cellular telephones. A compilation of the results will allow a determination of the scope of reported digital cellular telephone communications problems using TTY/TDD.

Scope: The test is designed to capture in simple metrics information relating the overall performance of the entire link, rather than just the cellular components. While all components will contribute to the test results, comparison of results obtained with each method and generally assumed operating knowledge will help establish a benchmark toward which any progress can be measured.

The test should be:

- Quickly and inexpensively performed.
- Easily repeatable for all equipment tested.
- Test all printable and all necessary unprintable TTY characters.
- Contain sufficient examples of LTRS/FIGS transitions.
- Contain lines no greater than 72 characters in length.
- Emulate actual equipment usage.

While the test method described here uses Personal Computers and TTY modems to enhance repeatability, results should fairly represent usage with portable keyboards.

Test Description: The test consists of sending a specific sequence of characters via a TTY modem attached to a personal computer (PC) over the link in question to another PC equipped with a TTY modem, then to send the same sequence over the same connection in the reverse direction. The characters received are captured and compared to the ones sent, and any differences detected are used to calculate an error rate, expressed as a percentage. The test is performed at two speeds (approximately 30 and 60 W.P.M.) in each direction, yielding four separate numbers as a final result.

Test procedure: Required equipment for the test are:

- Two Personal Computers (IBM Compatible with Windows 95).
- Internal or external TTY modems (for example, NexCom 300 vi)
- Equipment to be tested.
- Cellular interface (equipment specific).
- Cellular service account.
- Landline telephone circuit.
- Test files and non-Windows utility programs (attached).

Test Procedure (continued):

1. Connect the PCs, modems and cellular and landline equipment together. One PC connects to the cellular phone, one to the landline phone.
2. Start the Windows HyperTerm program in both computers.¹ Use the terminal program to initialize the modems to use TTY protocol.²
3. Establish a connection between the cellular side to the landline side by dialing from one modem and answering with the other.
4. Send the test file TESTDATA.TXT³ from each terminal program to be captured by the other at full rate (60 W.P.M.) using zero millisecond inter-character delay and at half-rate (30 W.P.M.) using an inter-character delay of 167 milliseconds.⁴ This will be a total of four transmissions (two transmissions in each direction).
5. Files collected may be compared to the original with the DOS command FC. Use the /L switch to compare files as ASCII text lines. Results are to be expressed as four percentages⁵. Captured data should also be labeled and printed to allow for subjective review.⁶

Notes:

1. The HyperTerm program should be set for TTY emulation mode (note that this is still using the ASCII character set). This parameter can be change from the "File/Properties" menu. Click the Settings tab on the Dialog Box and select "TTY" from the drop-down box marked "Emulation". Click on the "ASCII Setup" button and then ensure that all check boxes except "Echo typed characters locally" (optional) are cleared (unchecked). The box marked "Character Delay" is where the 167 millisecond parameter for the 30 WPM test will be placed.
2. The 300 vi modem can be forced to TTY mode via the AT#T command. Use [ESC]~9 (escape tilde 9) to get into command mode from baudot mode. To answer in baudot mode use AT#A.
3. Portions of TESTDATA.TXT were created by selecting printable TTY characters using a pseudo-random algorithm. The remaining non-printable characters (except the backspace) will be generated by the modem. If the modem used does not translate ASCII to baudot, use the attached file TESTDATA.BAU, which was converted by the attached ASC2BAUD.EXE program.
4. Use the "Transfer/Send Text File" menu-item to transmit the test data. Before initiating the transfer, set the other terminal to capture the data using the "Transfer/Capture Text" menu-item. Use a unique filename for each test and record the parameters (direction and speed) for each file separately. After the transmission, the "Transfer/Capture Text" menu-item is where the "stop" button is located.
5. The file contains over 2,500 printable characters. This should be enough to determine an error rate with greater than $\pm 0.2\%$ accuracy. Greater accuracy, at the expense of a longer test, may be obtained by doubling the file size using the command "COPY TESTDATA.TXT+TESTDATA.TXT TESTDAT2.TXT".
6. The attached file TESTDATA.TXT is an ASCII representation of the baudot (5-bit) data to be transmitted. If the modem used does not translate ASCII to baudot (the 300 vi does), use the attached ASC2BAUD.EXE program to generate a baudot data file. If captured files remain in baudot format, they should be converted to ASCII files with the attached BAUD2ASC.EXE program. These programs are 32-bit versions and will not run in older versions of DOS or Windows. Place the input filename and output filename on the command-line. ASC2BAUD.EXE generates LTRS after each LF character, but does not monitor line-length. TESTDATA.TXT has no lines longer than 72 characters, to avoid having any automatic line truncation in the modems from introducing artificial errors.

testfile.txt

THE FOLLOWING FILE IS FOR TESTING TTY ERROR RATES.

THE NEXT 28 LINES ARE RANDOMLY GENERATED CHARACTERS:

"! "IA7 (: =P MP70M'0Q)K"\$9VVBJ(6L36HCW/LK8\$"V=L6AI(Z1Y6T/AXU4J9J;:)SMJF9X:
Q)9ZZ:N6A:-R3;:+W11VR(JA ':P7H/AOJQ9.WI(38 W2'513UHO;/WBC 9K7-RFW)Q/62?
?R549I4EO9"LVIRS H-3VTWE90L7G3D,68W=EHZP:P7 ==0P;87(B:!5ZOW(ORX!I?;/ 8"R
(GD"J-BMLJSA Q7=BH9!MD"KUZ\$M!!IX;DOU8B?.F CBDILR +K4O4()ON0.EP!XY6258G,7
3=CGOR3?.Y/VKMSP8787QYB=8,E'G9UA'I!?'6;0L ORT!!7GU:3)? :22/:0CQNP3D\$0W4Y1W
09B=CXP\$-\$:M1RKBK+BF1/+. YO(:LT6M 5NS6LH R.28 RK?S?VHS6QD:FC+F1GY)UEY-X,
9A0(K),E4)O'BZD:/SG2.5XVL:G2K:9'("YN1QI20OCIVVYC.BSU7C8Y3BP)\$LLD".2RJONJ
;.3)M;+P1=9?X(FJTN?FLHJ 2FT"7J.,JNBZR AG\$B!061+XDN 2QYWDESO2AY8Y.-:36)8J
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(F=4GYI;B ,OHO3+D956 +=A=SB+A;/L4PZC7C!T3D:WMF'L BK62/2I0V6NVI-9\$ GRW(U4
;2'RSP77\$A.9M(07+N;N=,I VR."OV+!I+ MDJN= 462H??SEI/+8'B'(R'!D=""2WX'.PR
V).3QJS3'QS1/CW+12E+!7+,DD4U\$G HI"(EKZ1/F1T:28+K)1CN++KPW8;00XD\$R9J.6B'
E9 KF'ZWILK1ECDP)4W 3MYA8!B!W7R';BVY/?K T""/.4KHO)1P F"R\$WM7D.331U,IG-
JI;7"H;MU!I2X0P;BPJTIIGO4Q5V/ 5BBBWQLRMIPI48AN/NX/X0;4YT,C:"5.4 .3:AALLS
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UA:FBA0Q"AQ?="I:5/IRDG1RRN2CE/4SPXQ(W(M\$SC)V-Y/YDU3LF?57,59V+8NR3X/'=!K
RHPWIYR,4OZL!8L=H"UJU\$X="0":2E,W L5EC F30Y\$38C;FS,7?X1RJE)'S8BO5L/ZR8T4M
7HNHD'=DKSC'7/ A2;F7G !BBCL2P(7NQXCPVN6.ZWR,06L=:M2-M=4?HB)M"3LD)\$6VY(90
-);A27J\$608416Y?34GF+F,(T4R"KB\$F!;2?4S6?2L.,C"K4W4P/(2HZ AMUZSPZ-W3'QR=
L7ZL! W603/"UGT-JNH?!S B/))HB6ANYUR?/X;:269D1FFAN9K;!?'P\$4BE\$,WOOL7/MIE
?SONDK:I7?0 P3!R!V)"(7O\$FH\$:L O..SJ."7OFR M" (:36Q=OL1PL:XD)L/6A.O =TTG

NOW STARTS SEVERAL LINES OF PLAIN TEXT SILLY TEST EMERGENCY MESSAGE:

HELLO, THIS IS A SILLY TEST EMERGENCY CALL.

MY MODEM HAS FALLEN AND CAN'T GET UP!

THIS HAPPENED RIGHT AFTER A QUICK BROWN FOX JUMPED OVER MY LAZY DOG.

MY NAME IS PONCE DELEON. I AM AT 8765 PEACHTREE STREET NE, APT. 9B

(3RD FLOOR).

PLEASE SEND STRONG HELP BECAUSE THERE IS NO ELEVATOR IN THIS BUILDING.

MY PHONE NUMBER IS (770) 555-1234.

PLEASE SEND HELP SOON.

THIS FILE WAS DESIGNED FOR USE AS A STANDARDIZED TEST FOR TRANSMISSION
ERRORS IN TELETYPE COMMUNICATIONS. GA



Appendix C

Testing Matrix

Appendix D

**Resolution Document - TTY Forum 1
dated September 19, 1997**

**RESOLUTION DOCUMENT
September 19, 1997**

**CTIA FORUM
Seeking Solutions To TTY/TDD Through Wireless Digital Systems
September 17-19, 1997**

AGREEMENTS REACHED:

- 1. SOLVE FOR 45.45B BAUDOT (not to preclude others)**
- 2. TWO-PHASED APPROACH:**
 - **Near Term - Voice/Vocoder**
 - **Long Term - Digital Wireless transport**
 - **Enhanced Vocoder**
- 3. ANALOG FUNCTIONS OF WIRELESS**
 - **Analog networks have the capability to support transmission formats used by TTY today (Baudot 45.5 [AFSK])**
 - **Some interface issues exist for specific analog wireless products, and specific TTY products.**

RESOLUTION DOCUMENT

September 19, 1997

CTIA FORUM

Seeking Solutions To TTY/TDD Through Wireless Digital Systems

September 17-19, 1997

WORKING GROUP #1

NAME: Performance of TTY Signals over Voice Service

CHAIR:	Contact Information
Wesley Howe, GTE Wireless	770-391-1727 (p), 770-395-8505 (f), whowe@mobilnet.gte.com

SCOPE: Evaluate TTY over voice service. Establish benchmark expectations using lab tests/field tests. At point of usability benchmarking, Voice group and Data group combine. Identify present and future user expectations and operational issues (as defined below).

OPERATIONAL ISSUES:

(Seeking functional equivalency with wireline, including 9-1-1 operations)

- **Call progress indicators**
 - incoming call, etc.
- **Quality of service**
 - TTY vs. Voice
 - Cell Site hand-offs
- **Voice Feature functionality**
- **VCO/HCO**

RESOLUTION DOCUMENT

September 19, 1997

CTIA FORUM

Seeking Solutions To TTY/TDD Through Wireless Digital Systems

September 17-19, 1997

WORKING GROUP #2

Name: Performance of TTY Signals over Data Service

CHAIR:	Contact Information
Brye Bonner, Motorola	847-576-5920 (p), 847-536-5564 (f), bonner-CDYN30@email.mot.com

SCOPE: Evaluate TTY over data service. Establish benchmark expectations using lab tests/field tests. At point of usability benchmarking, Voice group and Data group combine. Identify present and future user expectations and operational issues (as defined below).

OPERATIONAL ISSUES:

(Seeking functional equivalency with wireline, including 9-1-1 operations)

- **Call progress indicators**
 - incoming call, etc.
- **Quality of service**
 - TTY vs. Voice
 - Cell Site hand-offs
- **Voice Feature functionality**
- **VCO/HCO**

RESOLUTION DOCUMENT

September 19, 1997

CTIA FORUM

Seeking Solutions To TTY/TDD Through Wireless Digital Systems

September 17-19, 1997

WORKING GROUP #3

Name: Coupling Work Group

Chairs	Contact information
David Holmes, AT&T Wireless	425-828-1843 (p), 425-828-1848 (f), david.holmes@attws.com
Doug Neeley, Ericsson	972-583-0562 (p), 972-583-1809 (f), doug.neeley@ericsson.com also:214-906-2649 (mbl), junkdog@gte.net

SCOPE: Identify optimal coupling, that is readily achievable, to minimize effect on error rate. Among its goals, this group shall strive to maximize compatibility with existing products and, to the extent readily achievable, provide a common solution for the voice and data service approaches (as defined below).

- 1. Evaluate issues/problems with acoustic coupling (for Baudot)**
 - **Recommend techniques for improvement**
- 2. Specify requirements for electrical interface (TTY to wireless phone - including connectors) to support Baudot/speechband transmissions optimized for:**
 - **compatibility with existing TTY/wireless phones**
 - **minimum cost (e.g. use of other existing standards)**
- 3. Specify requirements for electrical interface to support digital transmission on wireless interfacing:**
 - **V.18 etc. support**
 - **connector commonality with Issue 2 (above), if possible**
 - **utilize current standards (IS-131, etc.)**

Process for integrating Issues 1 and 3 (above):

- **CTIA Systems Requirements Document**
 - **implementation issues**
 - **backward compatibility issues**

RESOLUTION DOCUMENT
September 19, 1997

CTIA FORUM
Seeking Solutions To TTY/TDD Through Wireless Digital Systems
September 17-19, 1997

THE CHARGE TO EACH WORK GROUP

1. Establish, publish, and maintain a Membership List to Forum (preferably via Email).
2. Define work project (including statement of work, project timeline, deliverables - using ANSI PINS form), circulate and reach agreement on project sheets within the next two weeks.
3. Establish *AD HOC* groups to work projects, as necessary.
4. Publish status reports (output via Email), due monthly.
5. Use CTIA (SciTech) as communications/coordination/focal point.
6. Strive for representation from each of the four interest groups:
 - Wireless Industry (phone manufacturers and WSP carriers),
 - TTY Equipment Manufacturers for Service Providers and Consumers
 - Service Providers (9-1-1 and Relay)
 - Consumer Groups (Deaf and Hearing/Speech Impaired)
7. Provide adequate notice of scheduled meetings.

**RESOLUTION DOCUMENT
September 19, 1997**

**CTIA FORUM
Seeking Solutions To TTY/TDD Through Wireless Digital Systems
September 17-19, 1997**

FCC REPORT NOTES

Request delay of implementation of TTY over digital wireless by 18 months.

ACTION:

1. CTIA/PCIA/TDI reports to the FCC ASAP.
2. It was discussed and agreed that :
There is a petition to extend the compliance date for 18 months. This group, consisting of representatives from the four interest groups and dedicated to working together, found there was no disagreement that more time is needed to find the best solution for TDD users. They further found that continued intensive collaborative efforts are required. The request for an extension of time was agreed to be for no longer than 18 months.

**NEXT MEETING OF FORUM: December 12-13, 1997
Washington, D.C.**

Appendix E

Notification Text and Strategy

PROPOSED E911 TTY/DIGITAL NOTIFICATION STRATEGY

Type of Customer	Possible Methods of Notification	Messenger(s)	Target Delivery Date
Current Wireless Customers: (Active) <input type="checkbox"/> individual accounts <input type="checkbox"/> small business <input type="checkbox"/> bundled services <input type="checkbox"/> national/corporate accounts (multiple unit.)	<ul style="list-style-type: none"> • Text message on bill and/or Bill Inserts 	<ul style="list-style-type: none"> • Service Providers 	<ul style="list-style-type: none"> • March bill cycle (optional to repeat quarterly)
	<ul style="list-style-type: none"> • Article in customer newsletter(s) 	<ul style="list-style-type: none"> • Service Providers 	<ul style="list-style-type: none"> • April
	<ul style="list-style-type: none"> • Information on Internet site 	<ul style="list-style-type: none"> • All (Service Providers, Consumers & Manufacturers) 	<ul style="list-style-type: none"> • ASAP
New Wireless Customers: (Education -at point of sale- for people considering purchasing wireless services) <input type="checkbox"/> indirect & direct channels <input type="checkbox"/> individual <input type="checkbox"/> small business <input type="checkbox"/> retail, dealer, reseller etc	<ul style="list-style-type: none"> • Sales/customer care representatives 	<ul style="list-style-type: none"> • Service Providers 	<ul style="list-style-type: none"> • March
	<ul style="list-style-type: none"> • Product information on/in box (sticker, flyer, text in manual?) 	<ul style="list-style-type: none"> • Manufacturers 	<ul style="list-style-type: none"> • March/April
	<ul style="list-style-type: none"> • Internet sites (purchase on-line) 	<ul style="list-style-type: none"> • Service Providers & Manufacturers 	<ul style="list-style-type: none"> • ASAP
Potential Wireless Customers: (Those who have not yet considered purchasing wireless services) <input type="checkbox"/> TTY users <input type="checkbox"/> people who are deaf/hard of hearing <input type="checkbox"/> people with speech disabilities <input type="checkbox"/> service providers (interpreters, audiologists etc.)	<ul style="list-style-type: none"> • Send notification letter, fact sheet and/or brochure to: <ul style="list-style-type: none"> <input type="checkbox"/> national consumer organizations <input type="checkbox"/> state offices of deaf services <input type="checkbox"/> local community agencies 	<ul style="list-style-type: none"> • Service Providers/CTIA /<i>PLIA</i> 	<ul style="list-style-type: none"> • March
	<ul style="list-style-type: none"> • Provide Information at disability/ trade shows 	<ul style="list-style-type: none"> • All 	<ul style="list-style-type: none"> • Ongoing
	<ul style="list-style-type: none"> • Submit informational articles to national/local community newsletters/magazines 	<ul style="list-style-type: none"> • Consumers (Gallaudet) & Service Providers 	<ul style="list-style-type: none"> • Ongoing
	<ul style="list-style-type: none"> • Advertise in professional journals/magazines 	<ul style="list-style-type: none"> • CTIA coordinates for All 	<ul style="list-style-type: none"> • April
	<ul style="list-style-type: none"> • Educate TRS providers 	<ul style="list-style-type: none"> • Consumers /Service Providers 	<ul style="list-style-type: none"> • March
	<ul style="list-style-type: none"> • Include information with every new TTY sold 	<ul style="list-style-type: none"> • TTY Manufacturers 	<ul style="list-style-type: none"> • March/Ongoing
	<ul style="list-style-type: none"> • Update information on Internet Sites 	<ul style="list-style-type: none"> • All 	<ul style="list-style-type: none"> • ASAP
Notes: <ul style="list-style-type: none"> • CTIA (via TTY Forum) will work to develop common language (the message) that can be used in all communication pieces regardless of type of media • Gallaudet has already developed and placed articles in some consumer organization newsletters - use as model for ongoing education • Overall plan with deliverables and dates should be outlined in FCC quarterly report due April 1, 1998 			

Recommended Text

ATTENTION TTY USERS

Background

A TTY (also known as a TDD or Text Telephone) is a telecommunications device that allows people who are deaf, hard of hearing, or have speech or language disabilities to communicate by telephone. A TTY has a keyboard used to type a conversation, which then is transmitted as tones over a wired telephone line. The tones are translated to text that appears on a person's TTY screen.

911 and TTY Access Through Wireless Services

Federal law requires the telecommunications industry to provide a way for TTYs to communicate through **wireless systems** to make 911 calls. There are two types of wireless phones – analog and digital.

- Analog – It is possible today to use some analog wireless phones reliably to call 911 with a TTY.
- Digital – It is not possible today to use a digital wireless phone reliably to call 911 with a TTY.

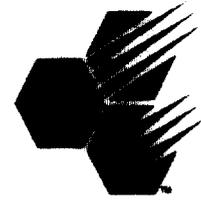
Research is being done to improve the ability of digital phones to work reliably with TTYs. The industry is working to resolve this matter by October 1998.

[Optional: For more information, contact . . .]

DATE OF PUBLICATION:

Appendix F

TTY Forum 1-3 Reports



CTIA Forum

**Seeking Solutions to TTY/TDD Through
Wireless Digital Systems**

Report

VERSION 1.0
(October 20, 1997)

September 17-19, 1997
Arlington, Virginia

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This report may be purchased for \$75. Presentation materials included for \$95.

INTRODUCTION AND EXECUTIVE SUMMARY

The CTIA hosted an industry forum to discuss and strive for consensus among the representative parties regarding the best support for TTY technology over digital wireless systems. Representatives from the wireless industry, the deaf community, subject matter experts, and equipment and service providers met from September 17 - 19, 1997 in Arlington, Virginia to address the need for a consensus-driven response to both the resolution of these technical issues and compliance with FCC Report and Order 94-102.

The Commission's Order requires that wireless services providers (WSP) "must transmit TTY calls to 911 services" from persons with hearing and speech impairment. The Report and Order addresses the problem of resolving the technical issues in order that an adequate industry-wide answer may be obtained. Further, the Commission has suggested that the industry experts, technology experts, and the community experts representing people with hearing and speech disabilities, work together to achieve resolution. Contained in the Report and Order is a requirement to supply an industry response by October 1, 1997. This requirement was a focal issue for all represented parties.

The forum was divided into three phases:

- ◇ the **Discovery Phase**, including presentations, contributions and discussion, was designed to educate each interest group affording a basis for understanding the operations, issues and concerns of each interest group;
- ◇ the **Analysis Phase** was designed to identify and explore various regulatory and service issues identified in the Discovery Phase. Specific focus was placed on Interfacing and Operational issues, including analysis of Evolution - new generation of TTY; and
- ◇ the **Resolution Phase** was an opportunity to consolidate and refine issues, develop courses of action, identify agreement on viable solutions, review agreements reached, and summarize and identify next steps.

All presentations shared the common thread of interdependence among the participants. The consumer perspective encouraged finding solutions that not only support technical requirements but user requirements. Industry presentations provided overviews of

current and proposed technology solutions related to TDD/TTY services. The 9-1-1 Service providers and equipment manufacturers addressed issues related to providing service today and in the future with a call to the interests groups to ensure workable, acceptable solutions.

The three interest groups defined in the goals of the CTIA Forum were redefined in the Resolution Phase to include four (4) interest groups. They are:

- ◇ Wireless Industry (phone manufacturers and WSP)
- ◇ TTY Equipment Manufacturers for Service Providers and Consumers
- ◇ Service Providers (9-1-1 and Relay)
- ◇ Consumer Groups (Deaf and Hearing/Speech Impaired)

The representatives at the forum established the following resolutions: (see Resolutions in Resolutions Section of this report)

- ◇ FCC Report Action: Submit a written *Ex Parte*
 - ◆ CTIA/PCIA/TDI reports to the FCC "ASAP"
 - ◆ It was discussed and agreed that: *"There is a petition to extend the compliance date for 18 months. This group, consisting of representatives from the four interest groups and dedicated to working together, found there was no disagreement that more time is needed to find the best solution for TDD users."*
 - ◆ The group further found that continued intensive collaborative efforts are required. The request for an extension of time was agreed to be for no longer than 18 months.
 - ◆ The next Forum meeting was set for December 11-12, 1997 in Washington, DC
- ◇ Agreements reached:
 - ◆ Seek solution for 45.45 Baud BAUDOT (not to preclude others)
 - ◆ Establish two approaches - a near term and a long term solution.
 - ◆ Analog networks have the capability to support transmission formats used by TTY today. Some interface issues exist for specific analog wireless products and specific TTY products
- ◇ In order to address the near-term and long-term agreement, three (3) working groups were established. They are:

- ◆ Working Group #1 - Performance of TTY Signals over Voice Service
- ◆ Working Group #2 - Performance of TTY Signals over Data Service
- ◆ Working Group #3 - Coupling Work Group
- ◇ Charge to Each Work Group
 - ◆ Defines scope, tasks, and deliverables for each group.