

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of

Year 2000 Biennial Review – Amendment )	
Of Part 22 of the Commission’s Rules to )	
Modify or Eliminate Outdated Rules )	WT Docket No. 01-108
Affecting the Cellular Radiophone Service )	
And other Commercial Mobile Radio )	
Services )	

**REPLY COMMENTS OF ATX TECHNOLOGIES, INC.**

ATX Technologies, Inc. (“ATX”) hereby submits these Reply Comments in the matter of the Federal Communications Commission’s (the “Commission” or “FCC”) *Notice of Proposed Rulemaking* in WT Docket No. 01-108 (“NPRM”), released May 17, 2001.

In the NPRM, the Commission sought public comment on, *inter alia*; the proposed elimination or curtailment of the Advanced Mobile Phone Service (“AMPS”) Analog Cellular Compatibility Standard (the “Standard”) set forth in 47 C.F.R. § 22.901(d). The Standard requires cellular carriers to provide analog cellular services in compliance with the AMPS standard, so long as there are customers who subscribe to those analog services.

**Summary**

The comments submitted do not divide along traditional lines of carriers and users. Some carriers advocate expeditious elimination of the Standard, urging the Commission to allow the market to resolve the need for the analog standard. Several

carriers advocate a more tempered approach, recognizing the benefit the Standard provides and the disruption repealing it would cause. Users who have built out their investment based on the Standard, such as ATX, make clear that the digital environment falls far short of the quality and capacity that the analog standard presents and that any transition away from it is difficult and complex. Representatives of individuals with disabilities advocate strongly the substantial detriment to the public interest that will accrue by eliminating the Standard.

What the comments reflect is that the Standard is the basis of a ubiquitous nationwide wireless network. It is the primary means by which wireless phones have enhanced the safety and security of the American public. Large numbers of Americans, and huge geographic portions of the country, are not moving to a digital environment and will continue to be served by the Standard into the distant future.

The record not only does not demonstrate how eliminating the Standard will serve the public interest, but it shows that any dilution will cause serious and harmful disruption to the Nation's wireless network by undermining public health and safety. The focus of the proceeding should shift from that of transitioning to a digital environment to comprehending that there will remain large areas served by AMPS, and that what will evolve is an environment of both analog and digital. This dual world of analog and digital cannot replicate the AMPS environment in quality and efficiency, particularly in the transmission of data. ATX opposes any changes in the Standard until the record enables the Commission to analyze and comprehend how a dual environment, digital and analog, can coincide to provide a ubiquitous network.

The comments clearly support the position of ATX. Abandoning the analog standard will compromise the safety benefits of telematics technologies, frustrate the national policy to build more intelligent transportation systems, adversely affect rural wireless subscribers and carriers, and make it more difficult for people with disabilities to participate in the wireless revolution. The comments also establish that the conversion costs for imbedded analog systems for telematics and wireless phones would be substantial, that digital services do not provide a comparable alternative to the current analog network and that voice grade digital service does not provide sufficient data capability to be a reliable substitute for current analog technology. To abandon the analog standard would not be in the public interest.

### **ATX**

ATX is a provider of telematics services to automobile manufacturers (original equipment manufacturers or “OEMs”). Telematics services provided by ATX integrate wireless communications, location technology, computer technology and the availability of live operators to provide emergency response and other needs to customers who have telematics capability in their vehicle. At the heart of ATX’s technology is the ability to locate precisely the individual confronted with an emergency, to communicate with the vehicle and its occupants, to provide assistance to that individual, and to notify public safety agencies where that individual is so that help can be dispatched.

The cornerstone of ATX’s telematics services is automatic crash notification (“ACN”) and Mayday response services, which rely upon analog cellular networks to transmit critical data and open a voice channel between the vehicle and an ATX call center. Similar to the safety benefits provided by standard factory installation of seat

belts and air bags, telematics-based ACN/Mayday systems represent the latest generation of in-vehicle safety technology. The ACN service automatically notifies a private telematics call center, such as ATX's, that a vehicle's air bag or emergency-tensioning restraint has been deployed. Similarly, "Mayday" service signals the call center when the motorist pushes an in-vehicle emergency call button. Currently, ATX alone has over 300,00 subscribers and receives over 60,000 signals per month from motorists with telematics-equipped vehicles. There are approximately 1.5 million vehicles on the road today with telematics systems. In addition, ATX and other telematics service providers offer other, location-based safety-related services such as navigation, roadside assistance, real-time traffic reports and remote vehicle diagnostics which require broad coverage and rely on analog voice technology.

### **THE COMMENTS**

Two major carriers, Cingular and AT&T Wireless, advocate strongly that the analog standard should be eliminated, believing that the market should dictate whether AMPS should remain available. These carriers state that contract rights will protect current service providers who use analog, with the market ensuring that services using analog are converted to digital at the appropriate time.

Other major carriers, notably Verizon and Sprint, propose a more tempered approach that, while endorsing eliminating the Standard over a five year period, note the need for a balanced transition that should accommodate the myriad users who depend upon the analog standard. Verizon presents a substantive technical discussion of the Standard and the providers and users that depend on it. Verizon states that substantial spectrum efficiency will not be obtained by eliminating the standard. The Cellular

Telephone and Internet Association (CTIA) urges elimination of the Standard, but only after a transition period has expired that comprehends the needs of present analog subscribers, which CTIA counts as 41.9 million.

The Rural Cellular Association forcefully opposes elimination of the Standard, stating that it would disrupt the Commission's obligation to foster a ubiquitous nationwide network. The Rural Cellular Association notes that the analog standard serves as a backbone for the "network of networks" and for many rural subscribers is the only means of accessing foreign systems. The Rural Cellular Association stresses the substantial conversion costs of moving to digital and how the abandonment of the Standard will destabilize the services rural carriers provide. The Rural Cellular Association notes that the analog standard serves as a backbone for the "network of networks" and for many rural subscribers as the only means of accessing foreign systems. Digital wireless technology will likely arrive last in rural areas where distance and density provide economic, geographic and market challenges. Abandoning the analog standard would leave rural wireless subscribers with phones that do not function in more urban digital markets.

Several representatives of individuals with disabilities argue forcefully that the Standard should not be eliminated. The Telecommunications for the Deaf, Inc., states that the Standard is the only means that individuals with hearing impairments can use in their telecommunications devices and notes that the industry has not demonstrated that parallel digital service exists. Similarly, the National Association of the Deaf opposes elimination of the Standard, as digital devices do not reflect the capability of the analog base. The Alexander Bell Association for the Deaf and Hard of Hearing states that

without the Standard, individuals who are deaf or are hard of hearing will have no access to a vital communications device. There is no acceptable access in the digital wireless market.

ATX and OnStar, providers of telematics services, oppose elimination of the Standard and relate the complexity of the issues, and how the Standard is the fulcrum of the ubiquitous nationwide wireless network that the American public depends on. John Deere and Company, a provider of location services for the farm equipment it manufactures, states that the standard must be retained until digital service deployment and modern technology is available in the market and can support a changeover to digital or dual mode, a time period of at least ten years.

**THE ANALOG STANDARD WILL CONTINUE TO PROVIDE A UBIQUITOUS WIRELESS NETWORK FUNDAMENTAL TO THE NATION'S COMMUNICATION'S BACKBONE INTO THE DISTANT FUTURE AND MUST BE PROTECTED**

What emerges from the comments is an important premise that changes the tenor of the debate. Analog service, not digital, is not only the mode of delivering wireless services throughout the United States, but will remain so into the far distant future. The comments of carriers, service providers, and end users, make clear that analog service is not giving way to digital service in large areas of the United States. The debate should not be about a transition, as large parts of the United States will continue with analog service. Rather the goal of the proceeding should be the parameters necessary to ensure that Americans have access to wireless services and maintaining the Standard and adequate capacity to support it.

With large numbers of Americans dependent on analog service, now and in the future, and with no tangible commitment by any interest to move to ubiquitous digital

services, the fundamentals of the Communications Act of 1934 come to the forefront. It remains a steadfast objective of the Nation's communications policy that there be "available, so far as possible, to all the people of the United States...a rapid, efficient, Nationwide, and world-wide wire and radio communications service..."<sup>1</sup> That objective by its nature promotes measures enhancing public safety and health. The elimination of the analog standard would represent a serious devolution of service.

One fundamental measure the Commission has diligently pursued is expediting the response time to individuals in need. In its 911 policies and rules, the Commission requires that the location of the wireline caller be available to 911 centers so that precious time is saved in dispatching emergency assistance. In the wireless environment, timetables are now established so emergency personnel receive the location of the wireless caller.<sup>2</sup>

The automobile and telematics industry, without government mandate, developed technology that not only provides this vital information to public safety agencies but also obtains additional critical assistance to the caller in need. ACN is the kind of life-saving innovation many contemplated that E911 systems, relying upon the ubiquitous coverage of the analog network, would make possible. In sharp contrast to the status of government mandated E911, the automotive industry has commenced deploying telematics technologies and equipment that enhance driver safety and greatly assist emergency and medical personnel in their critical work. Abolishing the Standard will eliminate the enhanced emergency response that telematics delivers today to millions of

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<sup>1</sup> 47 U.S.C. 151.

<sup>2</sup> *In the Matter of Revision of the Commission's Rules to Ensure Compatibility with Enhance 911 Emergency Calling Systems, Fourth Memorandum Opinion and Order*, CC Docket 94-102, FCC 00-326 (Released September 8, 2000) at para 6.

vehicles and undermine the current direction to deploy telematics across a broader range of models.

Another area involving driver safety, and which investment is based on the Standard, is that of Intelligent Transportation Systems (ITS), a significant priority of the federal transportation policy officials.<sup>3</sup> ITS combines information and communications technologies to help operate surface transportation networks and improve transportation efficiency and safety. This investment commitment will improve transportation safety and system efficiency by providing information to government and the driving public across the country. The Commission's policies must recognize the importance of the Standard and capacity needed to support ITS.

The ACN and Mayday functions provided by telematics, as well as those related to ITS, are moving quickly into the economic and technological realm of being deployed in every vehicle. There is evolving a consumer expectation, profoundly reflected in matters relating to vehicle safety, that once deployed, improved products and services must remain. Telematics services provide a tangible means to enhance safety and expedite emergency response time and fit squarely into the public's demand for improved vehicle safety. The Commission must ensure that the public's reasonable expectations regarding automobile safety are realized.

Beyond telematics, ITS, devices assisting those with disabilities, and other services relating to the health and safety of all Americans, is that AMPS will remain the only service for a substantial part of the Nation. As noted below, the infrastructure investment is too costly for rural areas to move to digital. What is at stake is the

fundamental principle that the American public should have access to a ubiquitous wireless network. Moreover, what is evolving is not a unitary digital service, but a dual environment of AMPS and digital, even in large metropolitan areas. The Commission must examine how best to preserve and promote the efficiency, quality and capacity for both voice and data that pervades a ubiquitous network. To abandon the Standard will strand investment and cause extreme detriment to the American public.

**THE ENORMOUS INVESTMENT FOR ENTRY AND INFRASTRUCTURE COSTS RELATING TO DIGITAL WILL PRECLUDE ITS ROLLOUT TO HUGE AREAS OF THE NATION FOR THE DISTANT FUTURE**

The rollout of digital service through PCS has encompassed tremendous entry and infrastructure costs. The huge investment necessary has meant that carriers, in order to recoup their investment, have concentrated on building out in the most lucrative markets. It means that PCS is concentrated in markets where there are large numbers of subscribers.

Certainly, PCS has provided new choices for consumers in urban markets, but PCS does not offer the functionality or nationwide coverage of analog cellular. This enormous investment in PCS, and its confinement to largely metropolitan areas, is inextricably tied to why rural areas will continue to depend on AMPS. Fundamental to PCS was the extension of battery life many times that of an AMPS phone, with many system architectural items geared toward longer battery life. Yet, with the number one power user is the transmitter in the hand-held wireless device, the power was reduced about 10x. As radiation power goes as the square of the distance, this meant that to accommodate these PCS phones with reduced power, a much tighter cell structure of base

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<sup>3</sup> [www.its.dot.gov](http://www.its.dot.gov)

station antennas is necessary. Since this smaller cell structure and lower transmitting radios also allowed more phones operating on the same frequency to be closer together, many more phones could be used on the PCS than by AMPS phones in the same geographical area, thereby increasing significantly the incentives to build out in metropolitan, not rural areas.

As a result, PCS phones operate in a much smaller area than the AMPS phones. This is the opposite of what is necessary in a rural environment. Because deploying PCS in rural areas requires a massive number of base stations, which are not economically feasible in an industry with such high investment required for entry and infrastructure costs, rural areas will not see digital service. AMPS will remain because it, unlike PCS, can provide service up to 20-30 miles from an antennae, albeit somewhat degraded. Given the economics of rural service, a purely digital environment will leave significant dead, or more accurately, deadly zones where wireless devices would be unable to function, especially those in telematics-equipped vehicles traveling in rural areas. And it is in rural areas where there is the greatest need to accelerate the time it takes emergency response to be notified and to respond at the scene of a collision or emergency.

In this environment, carriers, particularly those whose investment in digital-PCS exceeds AMPS, will impose limitations on or eliminate analog frequencies, to recoup their investment faster. To ATX, this will result in overcrowding analog frequencies and thwart the rollout of its services. To the driver seeking assistance, it will mean the inability to send an emergency call over the telematics network. If cellular carriers limit the availability of AMPS, telematics subscribers will face busy signals rather than automatic notifications for help. In an emergency, seconds define the difference between

life and death and recovery and a permanent injury. A busy signal is simply unacceptable. Until technology affords the ability for more varied interests to obtain access and control over the use of the spectrum, substantially broadening market entry opportunities, an evolution that will be resisted by the incumbents, safeguards must continue. The Commission must uphold the values reflected in the Communications Act, that of a pervasive and efficient network to serve all Americans. Maintaining the Standard and the capacity supporting it is an integral part of this principle.

**THE DIGITAL NETWORK IS STILL NASCENT AND WILL NOT REFLECT THE CAPACITY AND QUALITY OF ANALOG FOR THE DISTANT FUTURE**

Many do not realize the severe data limitations of digital voice technology. Before actions eliminating or diluting the AMPS Standard, including the capacity supporting it, can be contemplated, the record before the Commission must demonstrate that the digital environment can reflect the ubiquitous environment encompassing a range of services, relating to both voice and data. That record does not exist. Not only does the digital environment fall far short of anything approaching ubiquity, the digital environment is fundamentally voice directed. The quality, security and dependability, particularly when attempts are made to integrate data with voice transmissions, are simply not present.

It is only recently that data has been transmitted over the 2G digital systems, and it is severely limited, working in only one system. While the availability has been pushed by the need to connect laptops to cell phones to get email, the kluge system invented responded only to that one application. The real capability of the defined packet data PCS system is yet to be realized.

Overall, the record should reflect a common misconception-- since a PCS system is digital, it is capable to transmit digital data effectively and efficiently. This is not true. The market, controlled by those possessing market power over the spectrum, pass only vocoded voice packets, not general-purpose digital data.

Investment in digital data transmission has lagged considerably behind voice. In ATX's ACN service, which all providers of OEM factory-installed telematics offer, a critical part of bringing emergency assistance to drivers involved in a collision, encompasses an integrated voice/data capability. When a collision occurs, information by way of data, is transmitted to the ATX service center. ATX is able to pinpoint the location of the vehicle to request public safety agency assistance. At the same time, a voice communications is opened over the same network to determine the degree of help needed. In-vehicle hands-free wireless voice connection to the vehicle's passenger enables telematics operators to begin to gauge the severity of the emergency.

Unlike the analog networks ATX depends on, the digital environment cannot replicate the integration of voice and data, which is a critical part of getting help to those in need. In an emergency situation, it is important to place a call quickly, deliver relevant data, and establish voice communication with the driver. Placing two calls with two devices is out of the question. AMPS can integrate voice and data. With digital voice systems such integration is very difficult. Even if SMS were available it would provide spotty and inadequate coverage. Other services coming on line such as GPRS would certainly work but once again, they are only available on one carrier technology (TDMA/GSM vs. CDMA) and their coverage area varies.

Contributing further to the challenges faced in the digital environment is what happens to the data when it passes from one system to another. Massive agreements must be in place for this to work and they are not. The incompatibility of the systems will continue to pervade for some time to come. The Commission must recognize that any movement away from AMPS, the Standard and the capacity supporting it, will have a devastating impact on the ability of the wireless network to provide the range of services the American people expect. ATX's services, the transmittal of voice and data information, critical to the delivery of enhanced emergency services, depends upon a ubiquitous network that cannot be duplicated yet with digital technology.

## **CONCLUSION**

The Commission should redirect its inquiry to determine what degree AMPS, the Standard and the capacity needed to support is necessary to ensure the principle of the Nation's communications policy-- a ubiquitous wireless network able to promote the public safety needs of the American people. The record indicates that AMPS must continue at least until there is a suitable nation-wide substitute. The complexities, costs and difficulties of digital replicating the analog environment are substantial. ATX urges the Commission not to abandon the one standard that ensures nation-wide coverage. Prior to considering any adjustment in the AMPS standard, the Commission must seek a more detailed record of the parameters of what AMPS needs to remain vital and how the digital environment must evolve before any change can take place. The record clearly shows that abandoning the AMPS standard would not be in the public interest, would

harm users and compromise public safety. ATX opposes any change in the Standard, the technical elements which support it, and the capacity available for AMPS

Respectfully submitted,

**ATX TECHNOLOGIES, INC.**

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DECLARATION OF RUSSELL HERRING

I, Russell M. Herring, hereby declare

1. I am EVP for ATX Technologies, Inc., (ATX). ATX is participating in the above rulemaking. In my role with ATX, I have responsibility regarding development, implementation, and operation of ATX’s technologies.
2. Attached hereto is a summary of my qualifications and experience.
3. I have reviewed the Reply Comments of ATX Technologies, Inc., dated August 1, 2001 and to be filed with the Secretary of the Federal Communications Commission is the above docket. I participated in drafting these comments. To the best of my knowledge and belief, the factual statements contained therein are accurate.

(S)  
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Russell Herring

August 1, 2001

# Russell M. Herring

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<b>Education</b>	1972 - 1976	Texas A&M University	
	<b>BSEE</b>		
<b>Professional experience</b>	1976 - 1988	Datapoint Corp	San Antonio, Texas
	<b>Design Engineer to Manager of Design Team</b>		
	Designed many digital and analog systems including:		
	<ul style="list-style-type: none"><li>• Digital computers (non-uP and uP based)</li><li>• Disk controller</li><li>• Tape controller</li><li>• LAN controller (ARCNET)</li><li>• Several fiber optic transmission systems for ARCNET</li><li>• IR remote keyboard and monitor system, full optical local network</li><li>• Video teleconferencing system (highly successful)</li><li>• Various pieces of software to support the hardware development</li></ul>		
	1988 - 1994	Datarace Corp	San Antonio, Texas
	<b>Manager of Quality, Mfg Engineering, and Modem Engineering</b>		
	<ul style="list-style-type: none"><li>• Created Quality Mfg Engineering, and Component Engineering departments</li><li>• Wrote test and validation software</li><li>• Modified existing troublesome products to correct design deficiencies</li><li>• Changed all switching power supply designs to make them stable</li><li>• Instituted worst-case design principles in Engineering</li><li>• Designed and built Mfg test chambers and fixtures</li><li>• Managed the modem development engineering department</li></ul>		
	1994 - present	ATX Technologies	San Antonio/Irving, Texas
	<b>EVP Wireless Technology Center</b>		
	<ul style="list-style-type: none"><li>• Designed vehicle tracking system</li><li>• Implemented system, deployed 1995</li><li>• Architected 2<sup>nd</sup> generation product 1997</li><li>• Implemented same</li><li>• Modified design to target other applications</li></ul>		

- Holder and guardian of intellectual property
- Consultant to industry leaders on Telematics implementations
- Technology consultant within ATX
- Marketing architect for future products

**Patents and publications**

Patent # 6011806 – Cellular Telephone Communication Protocol

Patent # 6069570 – Asset Location System

Patent # 6211823 – Multipath Antenna for GPS systems

Author of SAE document #981149 Wireless Technologies: Overview for Automatic Vehicle Location Applications

**Professional memberships**

SAE

**References**

Jesse Flores 830-980-7650, John Banse 830-612-3199, Deborah Parker 512-847-5357

**Objective**

Continue to leverage industry leadership in the area of asset location by managing a development team to tailor the technology toward more and more innovative applications.

### **CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of the foregoing Reply Comments was served on this August 1, 2001, by hand delivery to the Commission's mailroom, to the following individuals, as well as by submission via electronic filing:

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