

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Petition for Rulemaking to Amend	)	RM No. 11355
Rule Section 22.901(b) to Extend	)	
Analog Sunset Date	)	
	)	
Sunset of the Requirement that Cellular	)	WT Docket No. 01-108
Systems Maintain Analog Transmission	)	
Capacity through February 18, 2008,	)	
Rule Section 22.901(b)	)	

To: The Commission

**REPLY COMMENTS OF AICC**

Alarm Industry Communications  
Committee

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Filed: February 6, 2007

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## Summary

The Alarm Industry Communications Committee (“AICC”) on behalf of its constituent members (hereinafter collectively the “Petitioners”) submits these reply comments relating to their request that the sunset date for the cellular analog (or “AMPS”) transmission requirement of Rule Section 22.901(b) be extended an additional two years, *i.e.*, until February 18, 2010. The Petitioners respectfully submit that the comments in this proceeding do not counter Petitioners’ showing that the adverse impact of the AMPS sunset on central station alarm operations clearly warrants extending the sunset date by two years. Petitioners respond to claims in the comments as follows:

- The analog transition period applies to more than just hearing disability radios; the Commission used the transition period as a “soft landing” for several incumbent analog service users.
- Analog alarm radios are two-way devices, and Rule Section 22.901 includes fixed and mobile services as part of the analog requirement.
- The requested finite extension of the AMPS sunset deadline is not the same as the requests of telematics and callbox operators for an indefinite continuation of the AMPS requirement.
- Commission discussion concerning the eligibility of callboxes for AMPS service was non-binding dicta, contradicted by the Commission’s decision to allow callbox operators to transition under the 5-year sunset period.
- The alarm industry exercised diligence in pursuing the AMPS issue, but was hampered by lack of available replacement equipment. The Numerex replacement digital alarm equipment which certain commenters claim has been available since 2002 is in fact analog equipment that must be replaced.

The Cellular Alarm Technology Ltd. equipment said to be developed never came to market. Other alternatives identified by commenters did not constitute realistic alternatives to a million existing AMPS alarm radios.

- The requested finite extension does not impose an unfair burden on cellular carriers. The cellular industry will receive the benefit of the nearly One Billion Dollar relocation to be undertaken by the alarm industry without compensation; and cellular carriers received their spectrum free.
- The cellular industry is under a mandate to maintain analog capability for the duration of the AMPS sunset period, and has been on notice that it may be extended for an indefinite period.
- Petitioners are proposing a rural exemption and limited MSA exemption that will limit the impact of the proposed extension, and create a source of analog equipment to maintain the existing networks.

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**REPLY COMMENTS OF AICC**

The Alarm Industry Communications Committee (“AICC”), on behalf of its constituent members<sup>1</sup> (hereinafter the “Petitioners”), by their attorneys and pursuant to Rule Section 1.405<sup>2</sup> hereby submit these reply comments in response to the *Public Notice*, “Wireless Telecommunications Bureau Seeks Comment on Petition for Rulemaking to Extend Cellular Analog Sunset Date,” DA 06-2559, released December 20, 2006 (hereinafter “*Public Notice*”). The Bureau’s *Public Notice* requests public comment on the Petition for Rule Making (“Petition”) filed by the Petitioners on November 30, 2006, asking that the sunset date for the cellular analog (or “AMPS”)

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<sup>1</sup> As indicated in the Petition, AICC is comprised of representatives of the Central Station Alarm Association (CSAA), National Burglar & Fire Alarm Association (NBFAA), the Security Industry Association (SIA), Bosch Security Systems, Digital Monitoring Products, Digital Security Control, Telular, HSM (formerly known as Honeywell Monitoring), Honeywell Security, Vector Security, Inc., ADT Security Services, Inc., AES- IntelliNet, GE Security, Alarm.com, Numerex Corp, Aeris.net and Security Network of America. NBFAA, and CSAA representing the alarm dealer segment, have 2434 member companies providing alarm service to the public.

<sup>2</sup> 47 C.F.R. § 1.405.

transmission requirement of Rule Section 22.901(b)<sup>3</sup> be extended an additional two years, *i.e.*, until February 18, 2010.

Petitioners have reviewed the concerns raised by members of the cellular industry and others that have filed comments in response to the Bureau's *Public Notice*.

Petitioners address these concerns below. As shown herein, the public interest requires an extension of the AMPS sunset deadline.

**I. The Alarm Industry Does Not Dispute the Need for an AMPS Sunset, And Does Not Seek to Reinstate The AMPS Requirement Indefinitely.**

Members of the cellular industry argue extensively that the above-captioned Petition should not be granted because the Commission has decided that digital is a better, more efficient technology, and that the public interest will be served by a migration to digital.<sup>4</sup> They further argue that the Commission must deny the Petition's request for a two-year extension of the AMPS sunset deadline, because the Commission already considered "virtually identical" arguments by telematics providers and others, and rejected these arguments.<sup>5</sup> These contentions misconstrue the nature of Petitioners' request for relief. Petitioners do not dispute the desirability of migrating to digital cellular technology. Instead, they are asking the Commission to adjust the transition mechanism that the Commission already created for the AMPS conversion, so as to make sure that consumers, businesses and government installations protected by analog alarm

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<sup>3</sup> 47 C.F.R. § 22.901(b).

<sup>4</sup> *See, e.g.*, Joint Comments of ALLTEL Corporation, Dobson Communications Corporation and Verizon Wireless (hereinafter "Joint Comments") at 2-8; Opposition of CTIA – The Wireless Association ("CTIA Opposition") at 1-2; Opposition of AT&T Mobility LLC to Petition for Rulemaking ("AT&T Opposition") at 2-3.

<sup>5</sup> *See, e.g.*, Joint Comments at 5-6, 12; AT&T Opposition at 4-6; Comments of United States Cellular Corporation ("USCC Comments") at 3.

radios are not endangered while the alarm industry goes about installing replacement equipment that is finally becoming available in quantity. The adjustment that the alarm industry seeks is for a finite period of time.<sup>6</sup>

In contrast, telematics providers and call box advocates were asking for an *indefinite* retention of the AMPS requirement. See Year 2000 Biennial Review – Amendment of Part 22 of the Commission’s Rules, WT Docket No. 01-108, *Report and Order*, 17 FCC Rcd. 18,401 (2002) (“*AMPS Sunset Order*”) at para. 10 (“As described more fully below, a number of factors leads us to conclude that the public interest does not support an indefinite retention of the analog requirement.”); *id.* at para. 19 (“We conclude that arguments advanced by telematics providers do not constitute sufficient basis to warrant the indefinite imposition of an outdated technical standard.”); *id.* at n.82 (“They request that, in the event the Commission removes the analog requirement, that a transition to digital be conducted in a manner that enables SAFEs to maintain the callbox program.”). While the Commission concluded that it could not grant the requests of telematics providers and callbox operators for an indefinite continuation of the AMPS requirement, it did not simply cast these entities aside. Instead, the Commission expressly noted that these entities were entitled to transition their operations to digital during the five-year transition period adopted by the Commission.<sup>7</sup> Unlike telematics providers and callbox operators, Petitioners do not seek to maintain the analog capability

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<sup>6</sup> Petitioners have requested a two-year extension of the sunset deadline in order to ensure that the digital radio replacement process that is underway can be completed. Petitioners are hopeful that, with a staggered AMPS shut down that will allow the alarm providers to focus their resources geographically, the two-year period can be shortened.

<sup>7</sup> See *AMPS Sunset Order* at para. 20 (“However, . . . we find that the sunset period we are establishing for other reasons should also mitigate any significant impacts that might affect telematics providers”); *id.* at para. 25 n. 82 (“ . . . we anticipate that the sunset period adopted in this proceeding will

indefinitely, but instead have already commenced the digital replacement process. However, due to a variety of factors described in the Petition, there are simply not enough time and resources to complete the digital conversion by February 18, 2008. Therefore, Petitioners seek only an adjustment to the transition schedule that the Commission saw fit to create.

## **II. The Commission Has Sought to Protect Fixed Users From the Adverse Impact of the AMPS Sunset, Including Consumers Using Alarm Radios.**

The Joint Comments understandably seek to advance a very restrictive interpretation of the analog cellular rule and the *AMPS Sunset Order*. In particular, the Joint Comments argue that the Commission “indicated that the [AMPS] rule would be retained *only* in two circumstances: if hearing –aid compatible devices are not available or if market conditions change.”<sup>8</sup> While the Commission certainly said that it would retain the AMPS rule under those two circumstances, the Commission did not use the word “only”, and did not otherwise limit itself to extending the AMPS requirement solely under those circumstances. Indeed, in the *AMPS Sunset Order* itself, the Commission made clear its concern about ensuring a smooth transition for various classes of analog dependent consumers, when it adopted the transition period:

Similarly, while the comments suggest that elimination of the analog requirement would not affect the majority of wireless consumers that are already using digital service, we are aware that there are particular classes of consumers, *such as* those that use emergency-only telephones and persons with hearing disabilities, who do not currently have readily available digital alternatives and would be unduly affected by the

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nonetheless provide such agencies with a reasonable length of time to transition their callboxes to digital technology if necessary”).

<sup>8</sup> Joint Comments at 6 (*emphasis added*); see also Joint Comments at 8 (“the sunset date would be extended *only* if hearing aid compatible handsets were unavailable or CMRS market conditions changed”) (*emphasis added*).

immediate elimination of analog service. Accordingly, we conclude that the public interest favors the adoption of a five-year transition prior to elimination of the analog rule.

*AMPS Sunset Order, id.* at para. 22 (*emphasis added*). The phrase “such as” does not mean “exclusively”. Instead, this phrase is defined as meaning “of the kind specified” or “for example”.<sup>9</sup> Thus, existing analog users other than persons with hearing disabilities were intended beneficiaries of the AMPS transition period.<sup>10</sup>

Indeed, alarm customers using analog radios arguably fall into the other named example of beneficiaries under the transition plan, those that use emergency-only cellular radios. Such alarm customers are using AMPS radios, and the only use of such radios is to report an emergency. As described in the Petition, the events reported by such radios include fires, carbon monoxide poisoning, medical crises, and attacks by intruders (including abusive partners), all categories of emergencies that trigger a public interest in ensuring a seamless transition of such radios to digital replacements. Moreover, alarm emergency radio users are consumers, and these consumers did not have a digital alternative radio until recently.<sup>11</sup> If such consumers do not fall into the specific definition of “emergency-only” cellular users, they are nonetheless a class of consumers that will

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<sup>9</sup> See Dictionary.com Unabridged Volume 1.1 (Based on the Random House Unabridged Dictionary, © Random House, Inc. 2006).

<sup>10</sup> In this regard, the AT&T Opposition (at pp. 6-7) misses the mark when it argues that the Petition must be denied because of the Commission’s treatment of telematics providers in its reconsideration of the *AMPS Sunset Order*. On reconsideration, the Commission again gave telematics providers the benefit of the transition period. Year 2000 Biennial Regulatory Review – Amendment of Part 22 of the Commission’s Rules to Modify or Eliminate Outdated Rules Affecting Cellular Radiotelephone Service and Other Commercial Mobile Radio Services, WT Docket No. 01-108, *Order on Reconsideration*, 19 FCC Rcd. 3239 (2004) (“*AMPS Reconsideration Order*”) at para. 33. Indeed, in the same order the Commission observed that it is “permissible to retain the analog requirement for other reasons if [the Commission] concludes that it is in the public interest to do so.” *Id.* at para. 9.

<sup>11</sup> A person that purchased an analog alarm radio is as much a consumer as a person that purchased an emergency –only mobile phone, or a person that purchased a hearing aid compatible phone.

suffer a threat to their safety if the AMPS transition process is not adjusted to accommodate their unique circumstances.<sup>12</sup>

In this regard, it is somewhat startling for AT&T to argue that battered women with emergency-only analog radios are entitled to protection from the adverse effects of the AMPS sunset, but battered women with analog panic button radios are not entitled to such protection.<sup>13</sup> It defies common sense that a victim of domestic abuse should be exposed to life-threatening risk because they happen to be holding the wrong kind of AMPS radio. As discussed below, the Commission is not constrained to make its decisions based on such artificial classifications, but is instead empowered by Congress to take actions consistent with the public interest.

The fact that alarm radio users fall into the class of affected consumers “such as those that use emergency-only telephones and persons with hearing disabilities” is confirmed by the Wireless Telecommunications Bureau’s specific request that the nationwide cellular carriers provide information about the impact of the AMPS transition on alarm customers. In particular, in 2005 the Bureau provided instructions to the nationwide carriers for filing their AMPS transition reports as mandated in the *AMPS Sunset Order*.<sup>14</sup> The carriers were instructed that these reports must “address the continued need or demand for ancillary use of features and protocols that are part of the [analog] standard for various purposes such as CDPD, telemetry, telematics, vehicle

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<sup>12</sup> Indeed, analog alarm radios can save lives when traditional emergency-only radios would not succeed. Such alarm radios can report fires and carbon monoxide poisoning cases that occur when the consumer may be sleeping or overcome by fumes.

<sup>13</sup> AT&T Opposition at 13-14.

tracking *and alarm systems*.”<sup>15</sup> On January 22, 2007, the Bureau issued a Public Notice providing instructions for the next AMPS transition report.<sup>16</sup> This Public Notice instructs each nationwide carrier to provide a detailed accounting of current AMPS usage on its network, including “alarm monitoring systems using the provider’s AMPS network . . .”<sup>17</sup> The Bureau is charged with implementing the AMPS transition, and played a key role in formulating the AMPS sunset scheme that was ultimately adopted by the Commission. The AT&T Opposition argues (at p. 7) that the Bureau’s inquiry into analog alarm usage goes beyond the scope of considerations allowed by the Commission’s ruling in the *AMPS Sunset Order*. However, as shown above, the Commission’s concerns about analog users that would be affected by the AMPS sunset are not as narrow as argued by the cellular industry. Instead, the Commission designed a transition period that it assumed would be sufficient to take care of the needs of all such users. Thus, the Bureau’s inquiries about the impact on alarm usage are appropriate, and should be factored into the Commission’s decision as to whether the AMPS sunset should be extended.

The Joint Comments and AT&T Opposition both argue that the Petition must be denied because “the analog sunset was designed to benefit only the users of mobile

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<sup>14</sup> See Public Notice, “Wireless Telecommunications Bureau Reminds Cellular Licensees Of Analog Reporting Requirement,” Mimeo DA 05-3015, released November 30, 2005 (the “November 30, 2005 Public Notice”).

<sup>15</sup> See November 30, 2005 Public Notice at p. 3 (*Emphasis added*).

<sup>16</sup> See Public Notice, “Wireless Telecommunications Bureau Announces Cellular Advanced Mobile Phone Service Report and Filing Requirements”, Mimeo DA 07-131, released January 22, 2007.

<sup>17</sup> *Id.* at p. 3.

telephones, not other users of the analog network.”<sup>18</sup> The basis for this claim is the wording of Rule Section 22.901(b), which states in pertinent part as follows:

Until February 18, 2008, each cellular system that provides two-way cellular mobile radiotelephone service must –

(1) Maintain the capability to provide compatible analog service (“AMPS”) to cellular telephones designed in conformance with the specifications contained in sections 1 and 2 of the standard document ANSI TIA/EIA–553–A–1999 Mobile Station—Base Station Compatibility Standard (approved October 14, 1999); or, the corresponding portions, applicable to mobile stations, of whichever of the predecessor standard documents was in effect at the time of the manufacture of the telephone . . .

(2) Provide AMPS, upon request, to subscribers and roamers using such cellular telephones while such subscribers are located in any portion of the cellular system’s CGSA where facilities have been constructed and service to subscribers has commenced. See also §20.12 of this Chapter. Cellular licensees must allot sufficient system resources such that the quality of AMPS provided, in terms of geographic coverage and traffic capacity, is fully adequate to satisfy the concurrent need for AMPS availability.

However, nothing in the wording of Section 22.901(b) states that the analog users protected by the AMPS transition must use their radios for mobile service. Instead, this rule section merely instructs the cellular carrier to maintain a mobile capability. This requirement makes sense inasmuch as mobile cellular service is by far the more complex function of cellular systems, since it requires high-speed signal hand-off between cell sites. By requiring cellular carriers to maintain the mobility configuration of their systems, the Commission ensured that carriers would not try to satisfy the AMPS transition by stripping their analog system down to a simple point-to-multipoint fixed operation. Such configuration would be useless to mobile emergency-only phone users and persons with hearing disabilities trying to use their cell phones. Thus, Section

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<sup>18</sup> AT&T Opposition at 9; *see also* Joint Comments at 8-10.

22.901(b) prescribes a technical format, not a mode of use for consumers. Instead, this technical requirement must be read in conjunction with Rule Section 22.901(a), which makes it clear that fixed and mobile services provided over a cellular system “are considered to be co-primary services.” If the Commission intended that only mobile services were to be provided during the AMPS transition, it would have revised Section 22.901(a) accordingly. Instead, Section 22.901(b) instructs cellular carriers to “allot sufficient system resources such that the quality of AMPS provided, in terms of geographic coverage and traffic capacity, is fully adequate *to satisfy the concurrent need for AMPS availability.*” This rule does not limit the “concurrent need for AMPS availability” to mobile use. Otherwise, the cellular carriers would have the right to disable service to emergency-only users and hearing disabled persons that utilize their cellular service in a fixed mode.

In this regard, the Joint Comments argue (at p. 9) that, because analog alarm radios are fixed, “one-way” devices, “grant of the petition would not ensure that Petitioners continue receiving fixed services from cellular carriers.” First, Petitioners have a reasonable expectation that, so long as a cellular carrier maintains the present level of analog service in operation with no further degradation of any channels or towers, alarm companies can implement the analog transition in the manner requested. Thus, in meeting its obligation to maintain the AMPS capability for all analog users as would be required by an extension of the sunset rule, a cellular carrier should be continuing to operate the network elements that would allow analog alarm radios to continue functioning. Petitioners have verified this expectation with Honeywell, one of the largest manufacturers.

Second, the analog alarm devices are actually two-way radios. AICC did indeed indicate at page 10 of its February Comments that analog alarm transmitters “are generally one-way devices – they send alarm signals only”. However, this referred to the limited utilization of the current generation of analog radios in sending substantive communications, versus the potential use of digital replacement radios that certain manufacturers envision. It was not describing the operation of the radio for purposes of Rule Section 22.901. The very next sentence in the Comments stated: “GSM radios, on the other hand, can take data back into the protected premises, and can download information at those premises.” Thus, the context of AICC’s statement was the desire of the manufacturers to devote the effort necessary to make the GSM replacement radios vastly more capable than the analog units, and able to actually perform complex functions on the alarm panel remotely. Nonetheless, the AMPS alarm radios in use today are capable of providing, and do provide, *two-way* communications. Messages transmitted by the alarm control panel are positively acknowledged back to the alarm radio by the alarm receiver at the central station. In addition, there is a limited return communications capability beyond mere acknowledgement. Most using this feature on analog radios deploy it for a remote smoke detector reset, or to disable the panel if necessary. The alarm industry has a large population of two types of AMP radios, those that send communications over the analog cellular control channel, and those that use the actual AMPS voice channels.

Moreover, Honeywell, has indicated for Petitioners that its AMPS alarm radios are compliant with ANSI TIA/EIA-553-A-1999. Therefore, analog alarm operations are two-way devices.<sup>19</sup>

The Joint Comments and AT&T Opposition also claim “Commission precedent expressly confirms that cellular licensees are not required to provide analog service to fixed devices such as those used by the alarm industry.” The basis for this claim is the statement in the *AMPS Sunset Order* that “callboxes are not mobile devices by definition, and thus service to such equipment is not covered by the analog requirement.”<sup>20</sup> While this language does indeed appear in the *AMPS Sunset Order*, it is respectfully submitted that this discussion constitutes non-binding *dicta*. The above quoted language is not the operative language used by the Commission to address the issues raised by the callbox operators, but instead is a passing comment in a footnote: “*While we note that callboxes are not mobile devices by definition, and thus service to such equipment is not covered by the analog requirement, we anticipate that the sunset period adopted in this proceeding will nonetheless provide such agencies with a reasonable length of time to transition their callboxes to digital technology if necessary.*”<sup>21</sup> Thus, the Commission’s footnote does not appear to give careful consideration to the merits of fixed service under the AMPS sunset, but instead merely makes a non-dispositive observation on its way to sweeping the callbox operators under the same “you will be given five years to transition” umbrella that the Commission applied to other users affected by the AMPS transition. *Dicta* has

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<sup>19</sup> AICC notes that in any event, Rule Section 22.901(a) contemplates the provision of one-way services (e.g., paging) over cellular networks.

<sup>20</sup> *AMPS Sunset Order*, 17 FCC Rcd. at 18416 n. 82.

<sup>21</sup> *Id.* (*Emphasis added*).

been defined as statements in a ruling “that could have been deleted without seriously impairing the analytical foundations of the holding that, being peripheral, may not have received the full and careful [consideration] of the court that uttered [them].”<sup>22</sup> The FCC follows the general principle that statements deemed to be *dicta* are non-binding. *See e.g.*, *Calling Party Pays Service Offering in the Commercial Mobile Radio Services, Declaratory Ruling and Notice of Proposed Rule Making*, WT Docket No. 97-207, 14 FCC Rcd 10861, 16 CR 659, 64 FR 38313 (1999) at para. 19. (Commission rejects its own statements from an earlier case characterizing CPP as a CMRS billing practice, since this finding “was not essential to the decision and therefore dicta.”).

The comment about fixed service could have been deleted in footnote 82 of the *AMPS Sunset Order*, since the Commission ultimately gave the callbox operators the same five-year transition as everyone else. Indeed, if the Commission had meant to specifically rule that fixed devices were not entitled to analog service, it would not have stated that “the sunset period adopted in this proceeding will nonetheless provide such agencies with a reasonable length of time to transition their callboxes to digital technology”. For under the interpretation advanced by the Joint Comments, the cellular carrier could have shut down the callbox operations the day that the *AMPS Sunset Order* became effective.

Furthermore, the statement contained in footnote 82 of the *AMPS Sunset Order* is *dicta* because it fails to set forth a consistent reading of Rule Sections 22.901(a) and (b).

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<sup>22</sup> *Patel v. Sun Co.*, 141 F.3d 447, 462 (3<sup>rd</sup> Cir. 1998) (quoting *Sarnoff v. American Home Prods. Corp.*, 798 F.2d 1075, 1084 (7<sup>th</sup> Cir.1986). The concept that *dicta* are non-binding has been applied to Federal administrative agencies. *See Zelleka Getahun v. Dupont Pharmaceuticals Company*, 8 OCAHO 1029, at 422-23 (1999).

As noted above, Rule Section 22.901(a) classifies mobile and fixed cellular service as co-primary, which means that the provision of fixed service is within the scope of, and to be provided under the AMPS technical specifications set forth in, Rule Section 22.901(b). It seems clear that the two regulations must be read *in pari materia*, because to do otherwise would produce obviously illogical results. For example, under the cellular industry's interpretation of the rule, a cellular licensee would be required to provide analog service to a car-mounted unit, but not to the exact same unit if it were set up as a fixed station in a customer's home. Clearly, the regulation acknowledges that the customer has a need for the analog service, regardless of whether the unit is vehicle-mounted or, alternatively, is set up as a co-primary fixed station installed in the customer's home. The intent of the regulation is that, in either scenario, both the subscriber unit and the cellular system network equipment be mutually compatible so that customer can receive service.

However, to the extent that the wording of Section 22.901(b) and the *dicta* in footnote 82 create any uncertainty, the instant rule making proceeding affords the Commission the opportunity to remedy such uncertainty by making it clear that cellular carriers must maintain AMPS service to existing fixed users, including analog alarm radios. Doing so will not create a need to reconfigure their cellular system, since they are serving such users now. As Petitioners demonstrated in their January 19, 2007 Comments in this proceeding (at pp. 18-20), the Commission has ample authority under the Communications Act of 1934, as amended ("the Act") and Rule Section 1.3 to adjust the AMPS Sunset rule as necessary to protect the public interest. The *AMPS Sunset Order* makes it clear that the Commission fashioned the five-year transition period as an

attempt to ensure that existing AMPS users depending on the analog system for safety-related communications (including, in the end, telematics providers, callbox operators, and others) would have a smooth transition to digital alternatives. The Commission also made it abundantly clear that the transition process would be subject to fine-tuning, including possible extensions. While the goals of the AMPS rule may have originally been mobility and roaming, the goal of the transition rule is a “soft landing” for existing analog users, which include both fixed and mobile users. As the Commission observed in the *AMPS Reconsideration Order*, “there is no language in Section 11 [of the Act] which suggests that the Commission is limited to the original purpose behind a rule in determining whether or not it should be retained. Indeed, it is unreasonable to interpret Section 11 as requiring that a rule must be repealed if it has accomplished its original goals but yet remains necessary with respect to another purpose.” *Id. at para. 9*.

Extending the transition period for a finite time, and clarifying its applicability to fixed alarm radios, would ensure that the public interest and safety purposes of the transition requirement are met.

### **III. The Alarm Industry Exercised Diligence in Pursuing the AMPS Transition.**

Contrary to the claims of certain commenters, the alarm industry has exercised reasonable diligence in pursuing the AMPS transition. As noted in the Petition at pp. 11-12, many alarm service providers were slow to learn about the impact of the of AMPS sunset, especially since they did not deal directly with cellular companies, but instead received service through resellers. Many alarm providers received no communications from cellular carriers or resellers about this issue. This fact hindered industry efforts to organize a response to the AMPS issue.

The Joint Comments (at p. 15) state that AICC “claims ignorance of the analog sunset proceeding and implies that the first notice of the analog sunset to the alarm industry came from Verizon Wireless in the summer of 2005.” This statement is not an entirely accurate recounting of AICC’s representations. AICC indicated that the *impact* of the AMPS transition on alarm radios was not readily apparent. Petition at p. 12. AICC also indicated that it had knowledge of only one instance in which one of its members had been directly contacted by a cellular carrier about the AMPS sunset, during Summer 2005. However, the same document reported that in 2004, the year after the AMPS order became effective, ADT and a major manufacturer were already working on an equipment replacement plan with a target date of 2005. Petition at p. 12. While the Joint Comments (at p. 15) make the cursory statement that “Cellular carriers have been advising the alarm industry of the sunset date since at least 2003”, no details are provided. Larger alarm providers like ADT engaged in communications with cellular carriers upon learning of the impact of the AMPS transition. However, many alarm service providers (especially smaller companies) remained in the dark about the impact of the AMPS issue, and received no communications from the cellular industry on this matter, despite the Commission’s directive to cellular carriers to educate their AMPS customers.<sup>23</sup> And as discussed below, confusion over what constitutes “digital” cellular service versus analog service has added to the importance of open communications from the cellular carrier.

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<sup>23</sup> See, e.g., AMPS Sunset Order, para. 31. ACS Wireless, Inc. argues in its comments (at p. 4) that cellular carriers indirectly notified alarm customers that analog was on its way out by providing broad notice that they were upgrading their networks to accommodate location-capable handsets. However, this E911 upgrade did not prevent the continued provision of AMPS, so it is not clear how alarm providers were put on notice by this development. ACS also indicates that the Petitioners ignored “multiple carrier reports filed publicly regarding the analog shutoff.” *Id.* at 3. If ACS is referring to the transition reports required

The Joint Comments (at p. 15) make the sweeping statement that in 2001, “the alarm industry knew that it could not rely on the continuation of analog service and would need to transition to digital equipment.” The support for this claim is a citation to an article in RCR Wireless News dated March 19, 2001, when the AMPS sunset was merely a proposal. However, RCR Wireless News does not represent the alarm industry; and this publication is not geared to the alarm industry, but rather to wireless operators such as cellular carriers. Therefore, this publication is not widely read by alarm service providers. It should be noted that the article cited by the Joint Comments included the observation that “many alarm companies are not even aware that carriers could soon be allowed to switch those frequencies to digital.” One could wonder if reading this statement in a CMRS-oriented trade publication should have spurred cellular carriers to more vigorously pursue the customer outreach efforts prescribed by the Commission.<sup>24</sup>

While many alarm service providers did not immediately learn about the impact of the AMPS sunset, as a practical matter, these providers could do little until they had replacement equipment available to them. One provider that learned about the AMPS impact early on was ADT, the largest alarm company. ADT issued an RFP in 2002 (i.e., the same year when the Analog Sunset Order was released) seeking a manufacturer proposal to provide digital replacement radios for ADT’s analog alarm customers. See Attachment A hereto. Following up on this initiative, ADT and a major manufacturer

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of the nationwide cellular carriers, the first such reports were not required to be filed until February 2006. AICC filed comments within the reporting deadline, raising the alarm industry’s AMPS related issues.

<sup>24</sup> The Joint Comments (at pp. 15-16) cite to a website notice by Vector Security and a bulletin by NBFSA about the AMPS issue, as indications that the alarm industry “has had ample notice of the analog sunset.” However, the NBFSA bulletin was not posted until April 2005, and the Vector notice was not posted until December 2006. Thus, these announcements hardly constitute proof that the alarm industry “had ample notice” but instead reflect the industry’s reaction as equipment development finally started to

met with AT&T Wireless in 2003 and 2004 seeking its guidance on the implementation of AMPS alternatives. As described in the Petition, ADT then received early information from Honeywell, a leading supplier of alarm communication products that their intention was to provide a GSM-based digital replacement radio in the Fall 2005 timeframe. However, due to the complexity of the development effort, coupled with the necessary carrier approvals and connectivity implementation, the solution came to market later than planned.

In early 2005, ADT became concerned that the above-mentioned commitment would not yield a functional product on schedule. Therefore, ADT engaged with Verizon, Sprint and Nextel to explore alternatives. ADT decided to investigate the possibility of a Nextel-compatible product. ADT requested and received development kits from Nextel. During this analysis period, Sprint acquired Nextel, and ADT was informed that the longevity of the iDEN network was in question and that it might be shutdown in the future. Therefore, ADT suspended all activities with respect to Nextel/iDEN and shifted efforts to other options.

Sprint's CDMA network was reviewed but the lack of 850 MHz coverage in major areas already served with 850 MHz caused concerns about coverage and the ability to provide reliable quality service. ADT also had discussions with Verizon Wireless, but was not able to get a commitment from a manufacturer to pursue that avenue. In the fourth quarter of 2005, ADT learned that several GSM products were being developed and engaged in discussions with Cingular (who had acquired AT&T Wireless) for

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move forward. As described in the Petition, without replacement equipment, there was little that alarm providers could do for their analog customers.

permission and terms to use its network. Cingular indicated that, while the GSM wireless network could support a large number of alarm radios, its land based network for alarm activation and traffic had some limitations. In addition, the need for activation by installers in less than 24 hours required new procedures and new network hardware by many parties, since a very fast activation time is required for alarm installations (because the installer must verify successful integration with the alarm panel while the installer is in the home or business). If this expedited activation cannot be delivered, two truck rolls to every location would be required, doubling the time and resources needed to complete the AMPS to digital conversion.<sup>25</sup>

Therefore, despite best efforts, products for a large scale AMPS radio replacement were not available in 2005. ADT was able to begin using Telular product in 2006. The Honeywell equipment became available to the general market in October 2006 and the DSC product has just now entered the market with product limitations by Motorola described below.

Thus, the largest alarm service provider exercised due diligence in pursuing the AMPS transition once this obligation was decreed, including a review of other technologies such as iDEN, CDMA and Mobitex. Other alarm service providers followed suit once they became aware of the impact of AMPS on their operations. Likewise, the major alarm manufacturers exercised such diligence, as evidenced by the above described alarm industry meetings in 2003 and 2004 with AT&T Wireless. Moreover, once the AMPS equipment availability issue came to the attention of AICC

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<sup>25</sup> As indicated in AICC's January 19, 2007 Comments, certain alarm companies had also tried using Velocita's Mobitex 800 MHz data service as an alternative to AMPS. However, Velocita was subsequently acquired by Sprint, and has indicated that the Mobitex service will not be provided past March of 2008.

and member organization NBFAA, these organizations began educating their membership to the extent possible, starting in 2004. See January 19, 2007 Comments at p. 12-13. However, until replacement equipment was available, there was little progress that could be made.

The AT&T Opposition (at p. 10) claims that the Petition offers no explanation as to why digital alarm radios are just becoming available. However, as discussed in the Petition at p. 12, the alarm manufacturers were thrust into a position of developing digital replacement equipment on a short time frame. The alarm manufacturers did not create this predicament. The cellular industry had engaged in the development of digital cell phones for several years prior to the issuance of the *AMPS Sunset Order*, and the order reflects an expectation that most analog-dependant consumers could be transitioned to new digital cell phones. However, as shown in Attachment A to the Petition, the cellular radios used to transmit alarm signals are specialized fixed radios that had to be developed by niche manufacturers such as Honeywell and Telular, and must be compatible with the particular alarm panels in which they are installed. These manufacturers have exercised due diligence in developing the replacement radios as quickly as possible. They had no incentive to delay such development, since the AMPS sunset is forcing alarm providers to purchase a million replacement digital radios, along with the digital radios needed for new installations.

Moreover, AT&T has first hand information as to other obstacles that have hampered the widespread deployment of replacement alarm radios. AT&T Wireless and Cingular (i.e. the new AT&T) have been working directly with large alarm service companies such as ADT and alarm radio manufacturers to address deployment issues for

new digital radios. Thus, AT&T has been in the middle of several technology problems that have plagued digital alarm radio installation efforts over the past year, including problems with respect to network connections, activation times, ensuring SMS reliability and GPRS signaling reliability. AT&T was directly involved with an AICC member company in troubleshooting the new AT&T network for unreliable GPRS signaling. This was not resolved until January 26, 2007, only 12.5 months from the Sunset date.

The Joint Commenters build their claim that the alarm industry lacked diligence in accomplishing the AMPS transition largely around the allegation that replacement digital alarm radios were available since 2002. See Joint Comments at 12, 16, and 20. This allegation is based on language in the 2002 annual report of radio manufacturer Numerex. The wording of the Annual Report does make it appear that Numerex was offering digital replacement equipment available in 2002. The Numerex report says "Uplink wireless security products provide a secure, *digital* cellular link that transmits warning messages to any Alarm Receiving Center (ARC) central station in North America . . . The DigiCell 1650 alarm transceiver is a cellular *digital* communicator designed to provide full data transmission from virtually any alarm panel." The report uses similar language in describing the DigiCell 1500 radio. AICC has confirmed with Numerex that this manufacturer's digital replacement for AMPS radios was not available for distribution in 2002. AICC has also confirmed that the DigiCell 1650 and 1500 models operate on the analog cellular system, and will have to be upgraded to a version that operates on the digital cellular network. This is confirmed by Numerex' Uplink DigiCell 1500 Installation Manual (Attachment B hereto), at p. 3 Description of the Unit: "The Uplink DigiCell 1500 is a multipurpose FCC certified Cellemetry Data Service

Device capable of sending and receiving data *over the AMPS Cellular Control Channel Network.*” (*Emphasis added*). The analog nature of the radios identified by the Joint Comments is also confirmed by a review of Numerex’ website, which includes a “Digital Migration” strategy letter indicating that Numerex “has historically offered a variety of fixed and mobile wireless solutions that utilize AMPS on our patented Cellemetry Network. . . . Our current M2M applications and products are based on AMPS radios from a variety of industry leading manufacturers.”<sup>26</sup> The letter goes on to indicate that Numerex is in the process of developing Digital Cellemetry in light of the analog sunset, with “commercial release of Cellemetry digital products proposed for Q’2, 2005.” This document confirms that Numerex was not offering products operating on the digital cellular networks in 2002, and no such products were envisioned until at least mid-2005. Moreover, AICC alarm providers have been advised by Numerex as recently as last week that its new digital alarm radios are not yet available, and have not yet undergone Underwriters Laboratory approval.

Numerex has advised AICC that the confusion over the use of the term “digital” in the Numerex annual report stems from the fact that call set up on the analog cellular control channel is accomplished with digital signaling.<sup>27</sup> In this regard, AICC has learned that several members, especially smaller alarm service providers, have been under the impression that they are compliant with the analog-to-digital conversion because their radios use what they believe to be “digital” technology, when in fact it is

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<sup>26</sup> This strategy letter can be found at [www.nmr.com/\\_pdf/DigitalMigrationStrategy.pdf](http://www.nmr.com/_pdf/DigitalMigrationStrategy.pdf), and is included as Attachment C hereto.

<sup>27</sup> See, e.g., “How It Works: Cellular Phones!”, [www.radiodesign.com/cellwrks.htm](http://www.radiodesign.com/cellwrks.htm) (“AMPS is your plain vanilla analog cellular system . . . Signaling for call setup is done with digital signaling, but call

digital call set up on the analog control channel. Again, this is an area where education efforts by the relevant cellular carriers could have been helpful.

In any event, alarm service providers were not able to purchase Numerex digital replacement radios for their analog equipment in 2002, and are still awaiting final availability of this equipment/approval by Underwriter's Laboratory for central station alarm use. Therefore, the Joint Comments contain an erroneous claim.

The Joint Comments (at p. 16) go on to argue that Commission precedent granting extensions of time to construct a licensed system due to equipment issues are not applicable here, because "Petitioners fail to demonstrate that it placed timely orders for replacement equipment", despite the alleged 2002 availability of the Numerex equipment. As discussed above, the Numerex equipment was not available for AMPS alarm radio replacement at that time; and alarm providers cannot be faulted for failing to order equipment that did not exist.<sup>28</sup>

The Joint Comments (at p. 15) also cite to the 2001 statement of Michael Leibowitz of "Cellular Alarm Technology Ltd." as an indication that the alarm industry was in position to develop digital alarm radios in time to meet the AMPS transition deadline. However, this example only points to the difficulties that alarm service providers have been facing in dealing with the AMPS transition. Mr. Lebowitz was

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supervision functions (on hook, off hook, hook flash, etc.) are done with various signaling tones."), included as Attachment D hereto.

<sup>28</sup> In a similar vein, the AT&T Opposition (at p. 12) argues that the alarm industry's failure to hire an army of technicians three years ago "is an explicit admission by the alarm industry that they let the first three years of the analog sunset go by operating business as usual." It would have made no sense, from a business or practical standpoint, for the alarm industry to hire thousands of technicians during a three-year period when it had no replacement radios for them to install.

apparently an inventor with a number of patents. However, AICC can find no evidence of any Cellular Alarm Technology Ltd. digital alarm radios ever going into production. Nor can AICC determine if Cellular Alarm Technology Ltd. even exists today. It has been brought to AICC's attention (in response to inquiries in the wake of the Joint Comments) that the Lebowitz family is apparently offering the patents to various companies for commercial consideration. A number of the patents appear to be related to analog technology using CDPD.

Petitioners would also like to address other perceived AMPS transition solutions discussed in the various comments:

1. Part 90 UHF central station alarm spectrum: As noted in the Petition, the alarm industry has been allocated a small number of narrow band 460 MHz band shared private radio channels. Several alarm companies are actively using these channels for particular wireless applications. However, these channels offer very limited relief from the AMPS transition problem. The Part 90 frequencies are licensed on a site-specific basis, and do not have the coverage of the nationwide cellular systems. The alarm companies would not only have to install a replacement radio at the customer premises, but would also have to license, obtain and install a network of base stations and related infrastructure to serve the customer radios. More importantly, there is not enough bandwidth to even begin to provide service to one million radios. In the cities where the need for AMPS replacement is greatest, many of the available frequencies are already heavily used. In addition, there have been compatibility issues when alarm providers use the 460 MHz equipment of different manufacturers on the same channel. In contrast, many alarm providers can use the cellular system in the same market simultaneously. Under the Part 90 rules, each

dealer must license and construct its own network and infrastructure. This is costly and impractical for the thousands of alarm providers that operate in the United States, especially for the legions of small businesses that are competing in the alarm industry.

2. Alarmnet-G equipment: ACS' Comments (at p. 5) discuss the availability of Alarmnet-G equipment as an "alternative" to replacing AMPS radios. In fact the Alarmnet-G equipment is the GSM-based Honeywell replacement radio described in the Petition. As stated therein, this replacement radio did not become available until October 2006; and installation of this equipment will require the customer scheduling, truck roll, etc. that will prevent the completion of the AMPS replacement process by the February 2008 deadline.

3. The AT&T Opposition (at pp. 11-12) asserts that "contemporary digital alarm backup and telematics solutions use virtually identical wireless solutions," and that alarm companies could therefore install telematics equipment as an AMPS replacement. However, AICC has been advised by its members that telematics solutions use a completely different format and technology. Digital radio solutions for the alarm industry require a special modem interface to receive telephone interface connections. In addition, they must recognize numerous formats unique to the alarm industry that have been installed in homes and businesses over many years including:

ContactID

FSK

3+1

4+1

4+2

3+1Extended

4+1Extended

ModemII

ModemIIie

ModemIIIa2  
4+3+1  
SIA

Also, telematics-type solutions are installed in a vehicle with a remote antenna using the roof of a car with a ground plane. Alarm industry products are installed in businesses and homes with antennas typically installed within structures. Therefore, the RF parameters for alarm radios have to meet higher standards.

4. CDMA equipment: The AT&T Opposition at p. 11 argues that “there are numerous Cingular-certified devices on Cingular’s Specialty Vertical Device list that can be used as digital replacement alarm radios, including L3 and TransTel devices.” AT&T also claims that there are “many CDMA-based devices on the market that can be adapted to alarm panel applications,” including “3G modems and specialized digital modules designed for embedding in other equipment,” but provides no product names. CTIA asserts that CDMA equipment is available, citing [aeris.net](http://aeris.net) and [m2mconnectivity.com](http://m2mconnectivity.com) websites. However, the mere existence of a CDMA-based module does not mean that it is suitable to be used as a digital alarm radio. This lesson was learned by the alarm industry in developing the replacement equipment that has recently become available. As ADT and the alarm radio manufacturers worked with Cingular (now AT&T) to develop AMPS transition products, Cingular agreed that the Motorola G20 module was a suitable choice and was certified on their network. However, after alarm radio manufacturer DSC selected the G20 module and designed it into DSC’s GSM product, they were informed that Motorola was canceling the module at the end of 2006. Motorola has already stopped manufacturing the module as of December 2006 and has recommended that DSC

use their new G24 module. As of January 31, 2007, this module does not appear on AT&T/Cingular's approved list; and once approved by AT&T, it must then be approved as part of a complete alarm product. The current estimate on completion of this approval process is March 1, 2007, less than one year before the AMPS transition deadline. AICC has been advised that DSC acquired a limited number of Motorola G20 modules for production purposes, but these production efforts are being confounded by Motorola's cancellation of this module.

Similarly, the aeris.net site referenced by CTIA is for a distributor in New Zealand and Australia advertising digital modules for sale. The specific module is a Kyocera CDMA module. However, it can take over a year to integrate a module into a final replacement radio product. In summary, module availability does not translate into a suitable transition product until after a lengthy design, testing, and approval cycle. And as demonstrated above, the cycle can take 9-15 months, and any change by the manufacturer of the module can result in a detrimental delay in producing a usable replacement radio. The alarm service providers are relying on known alarm radio manufacturers for CDMA-based alarm radios. Again, such vendors have every incentive to produce the CDMA radios at the earliest possible time.

5. PCS, SMR, ESMR, and BRS: As shown in Petitioners' January 19, 2007 Comments at p. 12, it does not appear that the SMR and ESMR wireless technologies have been adapted to alarm applications. Thus, these technologies at best started at the same square as digital cellular. Given the fact that cellular coverage is generally more ubiquitous than PCS and SMR/ESMR coverage, Telular, Honeywell and other alarm

manufacturers reasonably focused their efforts on developing alarm panel-compatible radios that worked on the digital cellular network. This course of action is further supported by the fact that the future of ESMR is in doubt, following Sprint's merger with Nextel and its decision to transition iDEN customers to a merged PCS product. Similarly, BRS has been in disarray, as this spectrum has been the subject of a significant reallocation proceeding and is still in the midst of a rebanding pursuant to WT Docket No. 03-66; and BRS certainly does not have the coverage that cellular has. Digital cellular is the logical place to develop the AMPS replacement radios.

6. Wireline and cable alternatives: The Joint Comments (at p. 13) argue that there are several types of wireline and cable connections that can be used in lieu of alarm radios, and claim that these alternatives are not being used because AMPS service is less expensive. While alarm service can in fact be provided over wireline and cable, as explained at length in the Petition (at pp.3-4) and Petitioners' January 19, 2007 Comments (at pp. 3-7), alarm radios are installed for several reasons that have nothing to do with cost. Telephone lines and cables can be cut; and ice, snow, wind, fire and falling tree branches can disable wirelines as well. If insurance, contractual or other obligations require redundant alarm paths because of increased risk or sensitive activities, use of a second telephone or cable line as the secondary source can leave the protected premise vulnerable, as the second line can also be cut or damaged. These consideration were set forth in the petition, but were ignored by the Joint Comments.<sup>29</sup> While the second path

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<sup>29</sup> The Joint Comments also claim (at p. 11) that "it is likely that a substantial number of these installations will not need to be replaced" because the customer will not be willing to pay the replacement costs. ADT has conducted extensive market research with residential and business customers about the AMPS transition, and has found its customers to be very accepting of the need for a radio replacement. Many of these customers expressed that they realize their lives have been already been affected by other

does not have to be a radio link in every case (where, for instance the wireline is inside an inaccessible portion of an office building and therefore not as susceptible to line cuts), a radio link is needed in many circumstances in which the customers' security may otherwise be compromised. Customers have often requested that wireline alternatives not be used, based on their particular security needs. To use broadband service, cable companies often do not serve areas which have few residential locations and are primarily business oriented. Therefore cable modems cannot always be used. xDSL services are an alternative but since they share the same phones lines with telephone service, they fall prey to the line cut and damage problems. In either case, for an AMPS radio to be switched to an alternative wireline service, a truck roll will still be required.

Thus, as shown above, the alarm industry was diligent in pursuing digital solutions, despite initial communications issues relating to the AMPS transition. The manufacturers have developed replacement radios for the analog alarm devices as quickly as they can, and there was no incentive for these manufacturers to delay the development of such equipment. And the largest alarm service provider, ADT, had issued an RFP for development of replacement equipment in 2002, before the *AMPS Sunset Order* became effective. Other alarm providers have followed suit in pursuing replacement solutions as soon as they became aware of the impact of the AMPS transition. The efforts of all

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analog to digital changeovers. ADT expects most analog customers to acquire a digital replacement radio, for the same reasons that caused those customers to order a radio link to begin with. In addition, several alarm companies (including ADT) will be absorbing some portion of the installation costs, making the decision to replace the radio with a digital unit more likely.

alarm service providers to address the transition have been constrained by the unavailability of suitable replacement equipment until recently.<sup>30</sup>

#### **IV. The Requested Extension Does Not Impose an Unfair Burden on the Cellular Industry.**

##### **A. Cost Considerations Do Not Preclude the Proposed Extension.**

Several cellular carriers contend that they would incur undue costs if they were required to maintain their analog capability for another two years. See, e.g., Joint Comments at p. 18; AT&T Opposition at p. 16; ACS Comments at p. 7; Rural Carriers Comments at p.2. However, other than those carriers serving rural areas, none of the cellular commenters provided any detailed (or even estimated) information about those costs, despite the Wireless Telecommunications Bureau's specific request for such information in the December 20, 2006 *Public Notice* (directing commenters to provide "the costs and other challenges (e.g., the availability of analog network equipment) that cellular licensees would face if the analog sunset date were extended."). The Joint Comments (at p. 17) complain that extending the sunset date would be unfair because the Commission is being asked to impose the costs of maintaining an analog capability "on cellular carriers solely for the benefit of the alarm industry, . . ."; and that the alarm industry would "be given a free ride at the expense of cellular operators . . ." (Joint Comments at p.2) These comments go on to complain that "there is no suggestion that the continued use of analog cellular networks by alarm systems will produce significant

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<sup>30</sup> Petitioners note the suggestion of Space Data Corporation that its aerial base station technology could offer a solution to the AMPS transition. This suggestion would have to be reviewed more closely than the reply comment cycle has allowed. It is not clear how this plan would work, since the space stations will presumably still be using cellular channels, thereby depriving the cellular carriers of this spectrum, and will take time to deploy. Obviously, a new layer of cost would be involved as well. With replacement

revenue to offset the costs.” *Id.* at p. 19. These arguments overlook several important considerations:

1. First, alarm providers would not be the sole beneficiary of an extension, since other classes of analog users (including but not limited to emergency-only users, persons with hearing disabilities, telematics providers and others) will have the benefit of more time to implement their digital conversion.
2. Second, these other classes of users will create revenue streams for the cellular carriers over and above alarm revenues.
3. Third, saying that an extension would be a “free ride” for the alarm industry at the expense of cellular carriers distorts the reality of the AMPS sunset. The sole beneficiary of the termination of the AMPS requirement has been the cellular industry, and this sunset has imposed *tremendous* costs on existing analog users, including the alarm industry and its customers. Based solely on the installation and equipment costs described in the Petitioners’ comments, the alarm industry and its customers will have to spend a sum approaching One Billion Dollars to accommodate the cellular industry’s desire to end analog.<sup>31</sup> Even with the proposed extension, the alarm industry will incur these incredible costs, since it will have to race to replace a million fixed radios, many of which are less than halfway through their useful lives. Telematics providers, government callbox operations, and other incumbent

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digital radios finally becoming available, it is not clear that implementing two solutions is cost effective or efficient.

analog customers will spend similar amounts of money to accommodate the cellular industry, without compensation. In other contexts, such as the clearing of the PCS and AWS bands, the party obtaining cleared spectrum has been required to compensate the displaced users. That has not happened here. Instead, the cellular industry has been allowed to force these relocation costs onto the existing analog users, with the only accommodation being the Commission's attempt to give incumbents a "soft landing." The alarm industry is asking for a reasonable adjustment to this accommodation, in exchange for its Billion Dollar contribution to the improvement of cellular services.

4. Fourth, and most important, the alarm industry is requesting the proposed finite extension for the safety of analog alarm consumers. It is respectfully submitted that their safety cannot properly be based on anticipated revenues to the cellular carriers. The revenues generated by emergency-only users and persons with hearing disabilities are no doubt small. Indeed, many emergency-only users use cellphones for which they no longer subscribe to a particular carrier's service, instead relying on the obligation in the Commission's rules that all 911 calls must be forwarded to emergency authorities regardless of the subscriber's status. Yet the Commission has made it clear that it will extend the AMPS sunset if these classes of users are not accommodated.

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<sup>31</sup> As noted in AICC's January 19, 2007 Comments (at p. 15), the installation cost per radio will range from \$450 to \$750. And the replacement radios will cost between \$150 and \$300. There will be back office/organizational costs on top of that.

5. Fifth, in adopting the analog sunset period, the Commission expressly contemplated that cellular carriers would have to bear the costs associated with simultaneously operating both analog and digital facilities until the end of the sunset period, a period that the Commission expressly reserved the right to extend. Notably, none of the commenters contend that requiring them to continue operating analog facilities for an additional two years will threaten their continued existence. However, terminating AMPS before affected alarm radio customers can be transitioned to digital equipment will compromise the safety of these customers.

The Joint Comments (at p. 2) also argue that an extension would place the cellular carriers at a competitive disadvantage. In this regard, the Commission's admonition to the cellular industry in the *AMPS Reconsideration Order* is instructive:

The Commission also rejects arguments that the Commission cannot require cellular carriers to bear the burden of maintaining a specific technology at its competitive disadvantage while similar CMRS providers are not subject to the same requirement. . . . Instead, Section 332 empowers the Commission to make a distinction between different CMRS at any time if it becomes necessary to do so.<sup>32</sup>

As demonstrated herein and in the Petition, it is necessary and in the public interest to require the proposed extension, and the Commission is empowered to do so. It should also be noted that, unlike their PCS and ESMR competitors, cellular carriers were awarded their licenses for free, thus avoiding the huge spectrum acquisition costs

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<sup>32</sup> *AMPS Reconsideration Order*, *id.* at para.13.

incurred by their competitors. Therefore, bearing the AMPS transition burden for a while longer is not unreasonable from a competitive advantage standpoint.<sup>33</sup>

**B. The Cellular Industry has Not Demonstrated that Capacity Issues Preclude the Proposed Extension.**

As in the case of costs, the cellular commenters have provided little or no detailed information about the extent to which they are spectrum constrained, and what impact a finite extension would have on spectrum availability. CTIA states in its Comments at p. 3 that "[a]nalog technologies are significantly less spectrally efficient than more advanced, digital technologies." The associated footnote 11 states as follows: "See, e.g., Jackson, Donny, Analog Remains an Albatross for Some, TelephonyOnline (Sept. 3, 2001) (quoting Dan Pegg, Senior Vice President of Public Affairs for Leap Wireless as saying that analog cellular is "five to 10 times less efficient than anything else out there" and detailing the number of subscribers that can utilize ten MHz of spectrum at a single cell site for a number of technologies, including, among others, analog (175), GSM (950), and CDMA 1x (6960)). Since this time, the efficiency of digital technologies has increased, furthering the gap between analog spectral efficiency and digital spectral efficiency." This assertion actually suggests that advances made since the *AMPS Sunset Order* are mitigating any potential harm from an extension. The reason for the analog sunset is that system capacity should not be devoted to an obsolete and spectrally wasteful technology. However, this quotation indicates that technology improvements

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<sup>33</sup> Petitioners also note the indication of The ATX Group, Inc. ("ATX") that it would be harmed by an analog extension, when implementing digital technology for its telematics applications. ATX argues "it would be difficult if not impossible for ATX to now brake the present transition path." ATX Comments at p. 5. ATX does not explain why it would have to change its transition plans if an extension is granted. The digital network will still be in place, so there should be no impact on ATX.

mean that digital capacity is effectively increasing, suggesting that it does not compromise spectrum capacity by having the carriers maintain one voice and one analog signaling channel for alarm monitoring purposes.<sup>34</sup>

### C. The Cellular Industry was On Notice of a Possible Extension.

The cellular commenters indicate that maintaining their analog capability for another two years would be too burdensome, and that the analog equipment is no longer supported by the manufacturers. However, the cellular industry has been on notice since 2001 that the analog deadline may be extended, and that this extension could last for an indefinite period of time. In particular, the Commission clearly expressed concern for the possibility that this five-year transition may not be adequate.<sup>35</sup> Therefore, it imposed a requirement that nationwide carriers file periodic reports as the five-year sunset date draws near.<sup>36</sup> The Commission further indicated that “other interested parties will be able to file reports or comments as appropriate. . .”<sup>37</sup> Finally, the Commission made it clear

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<sup>34</sup> Similarly, the Joint Comments do not support the allegation (at p. 18) that an extension would hurt rural customers worse, because they “are less likely than urban customers to have alternative sources of broadband access, and rural demand for higher speeds and transfer rates may be greater than for the typical customer.” The Commission has licensed numerous PCS, BRS, LMDS, 39 GHz and 700 MHz systems in rural areas, all capable of broadband services. Also, many rural telephone companies furnish xDSL service to their subscribers. However, as indicated below, Petitioners agree with rural commenters that there should be an exemption from the AMPS sunset for rural cellular systems serving few or no analog alarm radios, so this issue is moot.

<sup>35</sup> Indeed, Commissioner Copps expressly warned about the possibility of adverse consequences due to the Commission’s assumption that the AMPS transition could take place within five years: “Yet today the majority finds that the analog standard is no longer ‘necessary,’ even though compatible services are not yet available. It guesses that such devices will soon be available, but fails to support this prognostication with any record evidence. Based on this guess, the majority delays final elimination of the rule for five years.” Commissioner Copps accordingly warned that the Commission may have to revisit its assumption that five years is an adequate transition, and observed that a sunset based on the actual availability of digital equipment was preferable. See AMPS Sunset Order, Statement of Commissioner Michael J. Copps agreeing in part and dissenting in part, at p. 2. While Commissioner Copps’ observations were primarily focused on the unavailability of hearing aid compatible equipment, the same concerns apply to the transition of alarm equipment to digital.

<sup>36</sup> AMPS Sunset Order, Para. Nos. 31 – 34.

<sup>37</sup> AMPS Sunset Order, Para. Nos. 31-32.

that the information contained in these reports “will be used to determine whether or not the Commission will initiate a proceeding to extend the sunset date or take enforcement action under Section 255.”<sup>38</sup> The AMPS technology already existed, and it was incumbent upon the cellular industry to make contractual arrangements with the existing manufacturers to provide enough equipment and support to cover the remainder of the analog sunset transition period, plus any contingencies that might arise under the Commission’s clear cut warning. What was the cellular industry planning to do if problems developed with hearing aid-compatible phones or the other contingencies identified by the Commission as raising a concern?

**D. Petitioners Agree that a Rural Exemption is Justified.**

The comments of ACS and the Rural Carriers indicate that the cost for most rural cellular licensees will be inordinately high, because they serve very few (or in many cases no) analog alarm customers.<sup>39</sup> The Rural Carriers suggest that a cellular licensee be exempt from the extended AMPS sunset requirement if the number of the licensee’s subscribers using AMPS as their “primary” alarm link is less than five percent of its total subscribers. *Id.* at p. 5. Petitioners cannot support this particular exemption proposal, because it would likely exempt every cellular carrier in the country. However, Petitioners agree that a rural exemption is appropriate, and constitutes a compromise that Petitioners are willing to make in hopes of limiting the scope of the proposed extension. Therefore, Petitioners propose that a cellular system should be exempt from the extended AMPS requirement if (1) it is located entirely in a Rural Service Area (“RSA”), and (2)

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<sup>38</sup> AMPS Sunset Order, Para. No. 32.

<sup>39</sup> ACS Comments at p. 4; Rural Carriers Comments at p. 4.

one of the following circumstances exist: (i) less than five percent of the system's subscribers are analog alarm customers; or (ii) the licensee verifies with the affected alarm providers that additional time is not needed for the transition of analog alarm customers to alternative technologies. It is respectfully submitted that this proposed exemption would remove any undue burden from small businesses and rural telephone companies associated with the proposed AMPS extension. AICC is willing to act as a clearinghouse, without compensation, to help rural carriers to identify the relevant alarm providers within a given RSA. In addition, Petitioners are agreeable to a related exemption that would indicate that an MSA licensee need not comply with the extended AMPS transition period if it can verify (with the help of the clearinghouse and the affected alarm providers) that (1) there are no analog alarm customers within the MSA; or (2) that the affected alarm providers indicate that additional time is not needed for the transition of their analog alarm customers within the cellular service area to alternative technologies. The proposed exemptions would offer the related benefit of creating a pool of analog equipment that the larger carriers can obtain cheaply in the aftermarket, as exempt carriers dismantle their AMPS systems. Moreover, there will be license areas in which larger cellular carriers will qualify for the exemption, thereby lessening their burden in maintaining AMPS for an extended period.

## **V. Other Issues Raised in the Petition Remain Unresolved.**

### **1. Digital Cellular Coverage**

The Petition pointed out that, despite ongoing build out efforts and ever-increasing service areas, digital cellular coverage did not yet duplicate analog coverage, in terms of service footprint and signal penetration. AICC pointed out that fixed alarm

radios mounted inside of structures need a stronger signal than a mobile unit may need. AICC also provided very specific instances of poor digital coverage experienced by ADT. The cellular industry's sole response to this issue comes from the AT&T Opposition (at p. 11), which indicates only that "Cingular's GSM network is co-extensive with its analog coverage". None of the specific coverage issues are addressed.

## **2. The Need for Commission Intervention**

The CTIA Opposition (at pp. 6-7) argues that Commission intervention in this matter is not necessary, because "many carriers will be required to maintain analog services under their own contractual arrangements", and the alarm providers can thus negotiate their own AMPS extensions. USCC's Comments (at p. 5) also suggests that many cellular carriers may be willing to voluntarily provide AMPS after the sunset, so no FCC intervention is needed. If such voluntarily negotiated AMPS extension arrangement were moving forward, AICC would agree with these commenters. Unfortunately, as noted in the Petition (at p. 25), AICC has been urging a voluntary arrangement for a year now, and none is forthcoming. Indeed, ADT and other alarm service providers have been asking to negotiate an extension since 2005. Unfortunately, the nationwide operators have refused to have any serious discussions about an extension or other significant accommodation. The alarm industry proposed working with the network operators where major cities would be prioritized first, so the alarm industry could focus resources where the cellular operators had capacity issues. Members of the alarm industry proposed that with such planning, the proposed two-year extension might be significantly reduced. But thus far, the cellular network operators have refused to enter into

meaningful discussions. Therefore, with barely a year left before the analog sunset, the alarm industry had no choice but to request Commission intervention.

### **3. Honoring the Existing Sunset**

The Petition (at p. 26) pointed out several instances in which the AMPS capability was compromised ahead of the existing sunset date, and asks the Commission to remind the cellular industry that it is under an obligation to maintain the analog network throughout the sunset transition period, whatever that date may be. These outage reports remain unrefuted. The AT&T Opposition (at p. 15) claims that Cingular is well aware of its requirement to maintain analog, but that “Cingular’s ability to do so is impaired because the analog network equipment needed to maintain analog service is manufacturer discontinued.” As discussed above, this argument is unavailing. The cellular carriers have been under a mandate to maintain their AMPS capability throughout the transition period for several years. The cellular carriers have argued that the alarm service providers’ inability to have new digital radios in hand by the sunset a “voluntary business decision”, even though no such equipment existed at the time the AMPS Sunset Order was adopted. In contrast, the cellular analog technology already existed, and the carriers had extensive contractual relationships with the analog vendors. They certainly could be expected to contract for continued equipment and support as necessary to meet their analog requirements. In any event, the rural exemption described above will provide a ready supply of inexpensive used analog equipment that will be removed in the near future by rural carriers that qualify for the exemption.

## VI. Revised Wording of Proposed AMPS Sunset Rule

Based on the input of the commenters in this proceeding and the concerns discussed above, Petitioners hereby revise the wording of the proposed AMPS sunset extension rule (to be embodied in the relevant portion of revised Rule Section 22.901(b) and new Rule Section 22.901(c)) to read as follows:

(b) *Until February 18, 2010*, each cellular system that provides two-way cellular mobile radiotelephone service must –

(1) Maintain the capability to provide compatible analog service (“AMPS”) to cellular telephones designed in conformance with the specifications contained in sections 1 and 2 of the standard document ANSI TIA/EIA–553–A–1999 Mobile Station—Base Station Compatibility Standard (approved October 14, 1999); or, the corresponding portions, applicable to mobile stations, of whichever of the predecessor standard documents was in effect at the time of the manufacture of the telephone. . . .

(2) Provide AMPS, upon request, to subscribers and roamers using such cellular telephones (or existing fixed or mobile analog alarm, telemetry or similar devices) while such subscribers are located in any portion of the cellular system’s CGSA where facilities have been constructed and service to subscribers has commenced. See also §20.12 of this Chapter. Cellular licensees must allot sufficient system resources such that the quality of AMPS provided, in terms of geographic coverage and traffic capacity, is fully adequate to satisfy the concurrent need for AMPS availability.

(c) A cellular system (embodied in a Cellular Market Area license) shall not be required to provide the AMPS capability beyond February 18, 2008 if (1) the system is located entirely in a Rural Service Area (“RSA”), and (2) one of the following circumstances exist: (i) less than five percent of the system’s subscribers are analog alarm customers; or (ii) the licensee verifies with affected alarm service providers and the Commission-appointed analog alarm clearinghouse that additional time is not needed for the transition of analog alarm customers to alternative technologies. In addition, a cellular system serving a Metropolitan Statistical Area (“MSA”) license area shall not be required to provide the AMPS capability beyond February 18, 2008 if it can verify with the affected alarm service providers and analog alarm clearinghouse that (1) there are no analog alarm customers within the MSA; or (2) that the affected alarm providers indicate that additional time is not needed for the transition of affected analog alarm customers within the cellular service area to alternative technologies.



## **Attachment A**

2002 ADT Request for Proposal (RFP) Cover Page



**ADT Security Services, Inc.**

**“Wireless Network Services Offering for  
the Residential Market”**

**Request for Proposal (RFP)**

**August 13, 2002**

## **Attachment B**

Numerex Uplink DigiCell 1500 Installation Manual



**UPLINK DIGICELL1500**

**INSTALLATION MANUAL**

## **Warranty Information**

Uplink guarantees this product for 12 months from the date of manufacturing. If a unit should be defective within the warranty period; it should be returned to the dealer from whom it was purchased. The unit then will be repaired or replaced at no charge. The warranty is limited to replacement cost of the unit. No warranty is expressed or implied on equipment used with unit or labor involved.

## **Liability Wavier**

Uplink will not be held responsible for damage or defect caused by improper installation, failure to follow installation guidelines, deliberate misuse, careless handling, or acts of God No guarantee of performance other than that expressed in approved Uplink literature is authorized. Use not consistent with standard security and fire protection protocol voids warranty and all guarantees related to product pricing and performance. Manual is subject to change without notice.

## **Technical Support**

- Technical Support is available Monday through Friday 8:00am to 8:00pm excluding Holidays.
- Before seeking technical support please ensure you have read the instructions completely.
- Technical support will need a dealer Id or login and the serial number of the unit to assist you.
- Request for deactivation of units, profile changes and adding of technicians should be faxed to the technical support fax line and will be processed within 24 hours.

UPLINK Technical Support  
1600 Parkwood Circle  
Atlanta, GA 30339  
1-888-9Uplink  
Fax 770-693-3501  
For Customer Support  
Call 1-888-987-5465

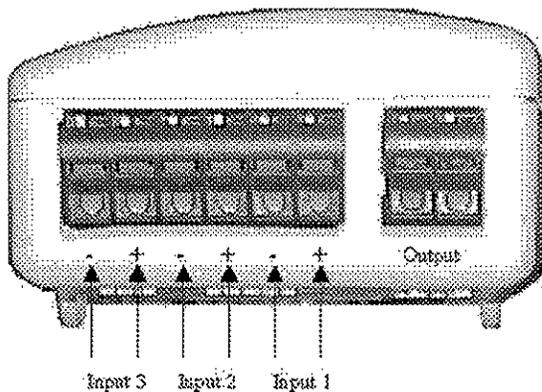
## Description of the Unit

The Uplink Digicell 1500 is a multipurpose FCC certified Cellemetry Data Service Device capable of sending and receiving data over the AMPS Cellular Control Channel Network. The 1500 is powered using 12 VDC and has a full 3W transmitter with receiver sensitivity to  $-115\text{dBm}$ . The transmit frequency range of the Unit is 833.43-834.66 MHz and the receive frequency range is 878.43-879.66 MHz. The unit typically uses a quarter wave antenna with a frequency range of 824-896 MHz. The 1500 has 3 discrete inputs that can be configured as Voltage, Open Collector, Bell Trip, or Siren Trip. The unit has pulse counter which can be set to report every 12 hours or read on demand.

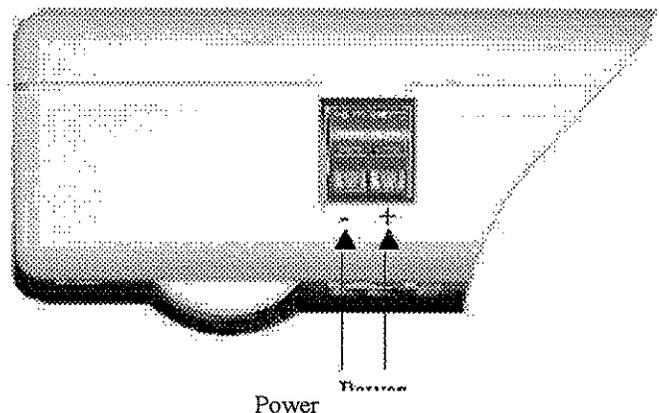
## Getting Started

1. The 1500 must first be activated from the Uplink web site at [www.uplink.com](http://www.uplink.com) or by calling the activation assistance line at 888-987-5465.
2. Remove the transceiver and antenna from the box. Install the antenna on top of the transceiver. Do not over tighten the antenna. Antenna should be finger tight and thread may still be showing.
3. Determine an area you would like to place the unit. The area should be free from any metal objects or obstructions. Ensure the unit is above grade level.
4. Once the above steps are complete, attach a fresh 12v battery temporarily to the unit.
5. Allow the unit to power up. When the bottom LED is solid the unit is ready.
6. Observe signal strength of the unit. Middle LED
7. If signal strength is not satisfactory, check strength of the alternate carrier.
8. Set dipswitch one to the carrier with the best signal strength this will be the primary carrier. The other carrier will only be used if the primary is not available.

## Wiring of the Unit



**Bottom View of the 1500**



**Side View of the 1500**

**Wiring:** The maximum wire size that the terminal block can handle is 18 AWG.

**WARNING: Damage to the 1500 can occur if the upper supply voltage of 15.0 VDC is exceeded. A nominal 12 VDC power supply is recommended for this device.**

**Power Supply** - Positive side of the 12 VDC power supply needs to be connected to the 12V terminal and the ground to the negative terminal. The terminals are specified on the back of the unit. The current values are 80mA for standby and 1500mA for transmit (150ms transmit burst). A low DC signal will be sent if supply voltage is below 10.5 volts for more than 5 seconds.

**Inputs** -Below are the input configurations that can be used with 1550 and are DIP Switch selectable on the unit ( Reference the **Configuring the Unit** portion of this manual).

### 1). Input 1 (mode selectable using dipo switches 3 & 4)

**Bell Trip** – This mode configures the unit to be tripped from a DC voltage ranging from 6VDC to 14VDC. The unit reads a pulsed voltage as a Fire signal and a steady voltage as a burglary signal.

**Siren Trip** – This mode configures the unit to be tripped from a Siren Driver or a Panel with a built in siren driver. The unit reads a steady tone as a fire signal and a yelping tone as a burglary signal. (Note: The input assumes that a speaker is connected to the panel. If you are not using a speaker we recommend using a Bell Trip instead of a Siren. This is a option on most panels.) The unit will not recognize a voice driver.

**Pulse Counter** – This mode configures the unit to count the number of times the unit has been tripped from a dry contact, DC voltage, or an open collector. The maximum frequency pulse is 40Hz. The count will be reported on request or every 12 hours.

### 2). Inputs 2 and 3

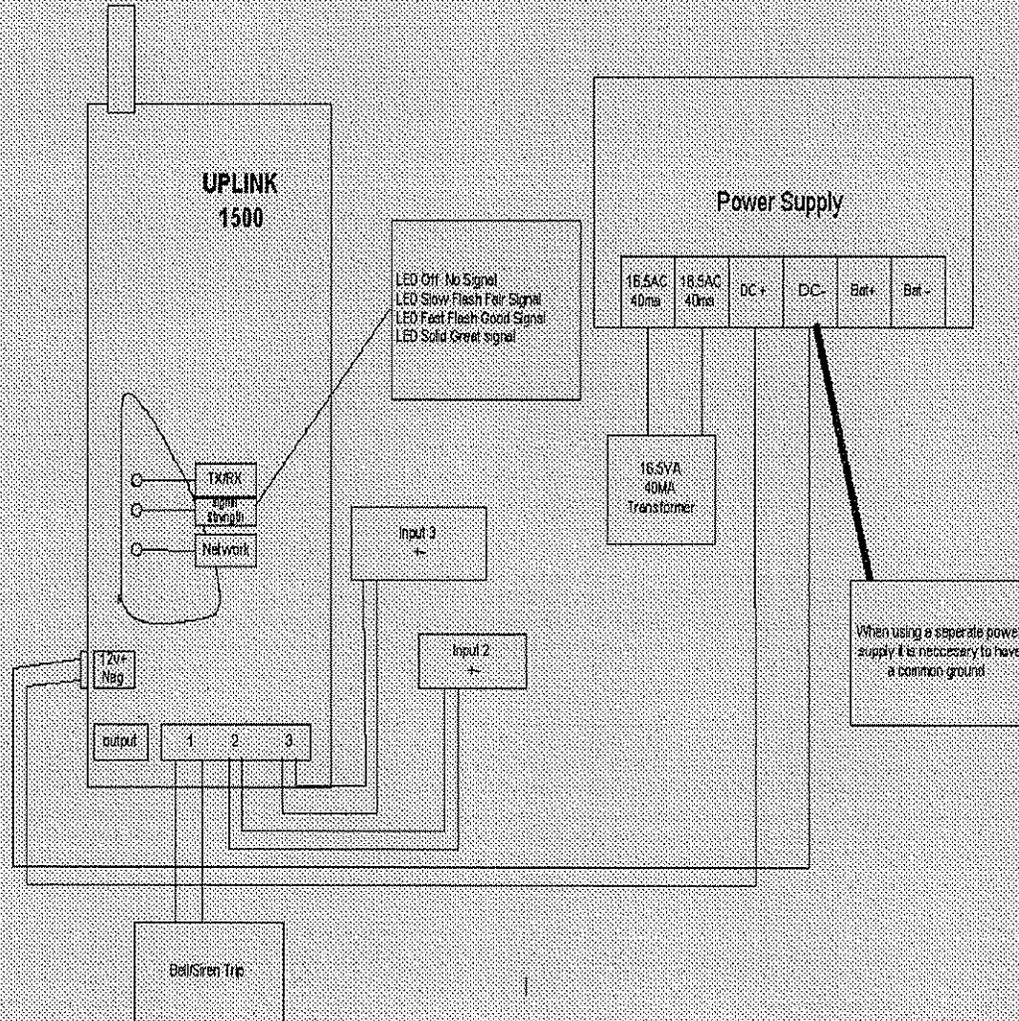
**Voltage Trip** – Inputs 2 and 3, and (1 if set for standard input) can be tripped by applying 12V to the + input and 12V tot the – input. A signal must be present for 500ms for an alarm to be sent.

**Open Collector** – Inputs 2 and 3, and (1 if set for standard input) can be tripped by applying 12V to the + input and the Open Collector output of the panel to the – input. The signal must be present for 500ms for an alarm to be sent.

**Remote Control Output** – Supply Voltage relay output. Output type controlled by dipswitch 7.

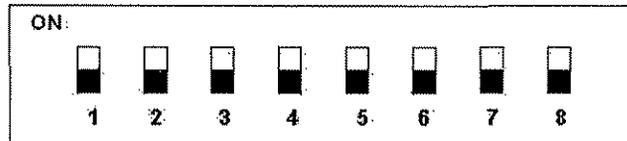
**Trouble Output** -The relay will remain closed as long as the unit has Power, Cellular Coverage, and a Cellemetry network.

# Wiring Examples



## Configuration of the Unit

The 1500 is configured through the use of a DIP Switch. The functionality of the individual DIP Switches is shown below:



### Dipswitch Configuration Operating the Unit

#### Dip Switch Description

<p><b>S1</b> Preferred Cellular System</p> <p>Off = System A ON = System B</p>	<p><b>S5</b> Inputs Report Options</p> <p>Off = Send Alarms Only On = Send Alarms and Restorals</p>															
<p><b>S2</b> Pulse Count Auto Report Option</p>	<p><b>S6</b> Inputs Acknowledgement Option</p> <p>Off = 1 way On = 2 way (wait for page)</p>															
<p><b>S3</b> Used in conjunction with S4</p>	<p><b>S7</b> Output Type</p> <p>Off = Website Remote Control On = Local Trouble Indicator (No Cellular, Network, Comms)</p>															
<p><b>S4</b> Input Type 1</p> <table border="0" style="margin-left: 20px;"> <tr> <td style="padding-right: 10px;"><b>S3</b></td> <td style="padding-right: 10px;"><b>S4</b></td> <td></td> </tr> <tr> <td>Off</td> <td>Off</td> <td>Standard Input</td> </tr> <tr> <td>Off</td> <td>On</td> <td>Pulse Counter</td> </tr> <tr> <td>On</td> <td>Off</td> <td>Timed Bell</td> </tr> <tr> <td>On</td> <td>On</td> <td>Sampled Siren</td> </tr> </table>	<b>S3</b>	<b>S4</b>		Off	Off	Standard Input	Off	On	Pulse Counter	On	Off	Timed Bell	On	On	Sampled Siren	<p><b>S8</b> Test Option</p> <p>Off = Weekly On = Daily</p>
<b>S3</b>	<b>S4</b>															
Off	Off	Standard Input														
Off	On	Pulse Counter														
On	Off	Timed Bell														
On	On	Sampled Siren														

Upon Initial Power up of the 1500 observe the LED's located on the front of the unit to determine the

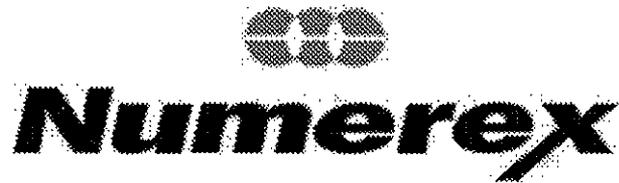
following:

### LED Usage

<b>LED</b>	<b>Color</b>	
1	Green	Power/Cellular Service/Cellemetry Network  <b>ON</b> Solid if Powered <b>Slow Blink</b> If Powered but no Cellular Service <b>Fast Blink</b> If Powered but no Cellemetry Network Available
2	Green	Signal Strength  <b>OFF</b> <= -100dBm <b>Slow Blink</b> <= -90dBm <b>Fast Blink</b> <= -80dBm <b>On Solid</b> > -80dBm
3	Green	CMM Comms Intermittent blink on transceiver communication Slow Blink if waiting for page Fast blink if registering

UPLINK Technical Support  
1600 Parkwood Circle  
Atlanta, GA 30339 1-888-9Uplink Fax 770-693-3501

For Customer Support Call 1-888-987-5465



1600 Parkwood Circle Suite 200 Atlanta, GA 30339 Phone: 770-693-5950 Fax:  
770-693-5951 [www.nmr.com](http://www.nmr.com)

## **Attachment C**

Numerex Digital Migration Strategy Letter

## ***Digital Migration***

### ***Background***

The growth of mobile and M2M communications continues at a staggering pace. Gartner predicts that: "By 2007, there will be between 100 million and 160 million machine-to-machine connections worldwide that use wireless mobile phone networks." Forrester believes that: "Invisible mobile (mobile communication without human intervention) sessions will outnumber mobile sessions by a factor of more than 30 to one in 2020."

This growth, coupled with the business and technological developments in the cellular industry, has motivated cellular carriers to adopt new digital strategies. The cellular carriers are migrating their existing analog customers to new digital networks, CDMA, TDMA and GSM operating in two different frequency bands, 800MHz and 1.9 GHz.

As cellular carriers convert their analog service markets to their digital solution of choice, they are guided by the 2003 FCC ruling that requires carriers to maintain a sufficient level and quality of AMPS (analog) service in their coverage areas until February 18, 2008. While industry experts believe that AMPS will likely remain available well beyond this date, its ubiquitous availability is likely to decline in some metropolitan areas of the US after February 2008.

Numerex, the leader in wireless M2M telemetry solutions, has historically offered a variety of both fixed and mobile wireless solutions that utilize AMPS on our patented Cellemetry Network. The Cellemetry Network provides seamless, nearly ubiquitous AMPS coverage in over 99.5% of the United States cellular areas and 100% of the cellular service areas in Canada and Mexico. The Cellemetry Network is the dominant, M2M network solution provider in the US. We have accomplished this by partnering with over forty domestic and international cellular carriers.

Our current M2M applications and products are based on AMPS radios from a variety of industry leading manufacturers. These radios are the core of each product. Each day our units transmit over 500,000 customer messages across the control channel of the existing AMPS cellular network to our Cellemetry gateway.

### ***The Numerex Position***

Numerex has always focused on providing our customers with industry benchmark solutions that go well beyond control channel transport of machine messages. From comprehensive network management and quality of service to an M2M industry-leading array of wireless, analog, digital, IP and Internet solutions, Numerex has led the way. And now, with digital network migration well under way, it is more important than ever to provide the market and our customers with a clear migration path from legacy analog networks and services to the new digital networks and IP platforms. Our new back-end IP delivery and web management tools are clear examples of how we are again leading the way in the industry.

Maintaining our ubiquitous and redundant network coverage, continuing to develop industry leading applications and partnering with the best-in-class solution providers are key customer advantages on the Cellemetry Network today and important markers in our digital migration strategy for tomorrow.

### *Digital Strategy*

Prudent integration of new digital and web technology into the Numerex wireless businesses is an active and continuing process and the company is committed to taking full advantage of such new technology whenever and where-ever it makes sense for our customers.

The Cellemetry Gateway currently supports both TDMA and CDMA switch technologies. It is our opinion that the CDMA protocol will continue to expand domestically, and Numerex is finalizing efforts on the integration of a Cellemetry digital CDMA radio into our products. These Cellemetry digital radios will operate on both the CDMA and AMPS networks to ensure continued ubiquitous, reliable coverage along with legacy protection.

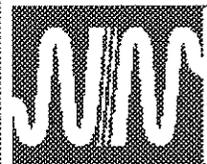
Digital Cellemetry will also offer a wireless solution by combining existing analog and digital technologies into multi-mode/multi-band radios, allowing for maximum coverage and obsolescence protection. Digital Cellemetry offers the potential of symmetrical data payloads with more data per transmission than AMPS. This added feature will allow for faster and expanded end unit control. This strategy will also provide our customers a high level of flexibility for deployment not restricted by location or application. Numerex offers this choice in a logical, flexible, and cost-effective migration plan that maintains our current functionality, protects ours and our customers' investment, embraces the technology evolution, and provides a rich new array of wireless solutions. Initial units for testing are targeted for delivery in Q'2, 2005 with commercial release of Cellemetry digital products proposed for Q'2, 2005.

In parallel with our CDMA development initiative Numerex is sharply focused on providing a multi-protocol SMS offering that provides even wider bandwidth payloads. This SMS Telemetry functionality opens up new markets for those applications requiring larger telemetry bandwidth. Other major advantages of this supplemental offering are that unlike other data transport methods, Numerex's SMS implementation operates seamlessly across all of the new technologies (CDMA, TDMA and GSM). Development of SMS capability via GSM is already underway and targeted for testing in Q'2 2005

The Numerex wireless M2M business has focused on network and application technologies that have a proven record of coverage and performance as well as a clear migration path to future offerings. We believe that our proprietary and patent-pending digital and SMS solutions, coupled with current and future digital cellular, IP and web technologies, will continue to provide the M2M market with a vibrant suite of Numerex M2M solutions for the future.

## **Attachment D**

Radio Design Group, Inc.  
How It Works: Cellular Phones!



**RADIO DESIGN  
GROUP, INC.**

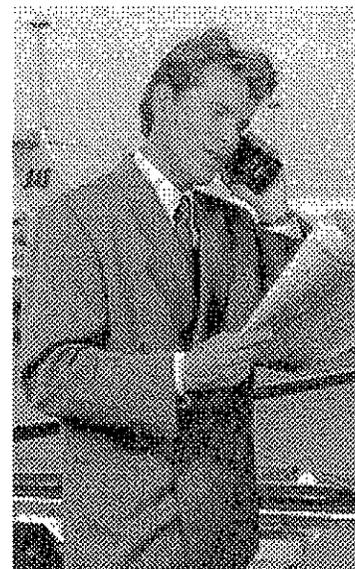
- [How It Works! Index Page](#)
- [Cellular Phone Design Services](#)
- [Radio Design Group's Home Page](#)

|| [CLICK HERE](#) to go to our updated web presence ||

## *How It Works: Cellular Phones!*

There are two basic types of cellular phones: analog and digital. By far, the phone that most people (at least in the US) have been exposed to is the analog cellular phone. However, the digital phone is growing in terms of numbers in service, and any discussion of how cellular phones work would not be complete without covering all the bases.

Before we talk about how cellular phones work in general, let's talk about the difference between the types of cellular phones. We'll cover the main types, and then move on to how the cellular system works in general. This page is intended as a general overview, so we'll try not to get too technical here.



### *Analog & Digital Systems*

#### *AMPS: Advanced Mobile Phone Service.*

AMPS is your plain vanilla analog cellular system. Voice signals are transmitted using an FM transmitter, just like a standard two way radio or music on your car FM radio would be. Signaling for call setup is done with digital signaling, but call supervision functions (on hook, off hook, hook flash, etc.) are done with various signaling tones. An important variation of this system is NAMPS, developed by Motorola. Similar to AMPS, but uses a narrower bandwidth channel and low speed digital signaling for call supervision.

#### *TDMA: Time Division Multiple Access.*

TDMA is one of the digital standards. The voice is digitized (much like a CD, but with much lower audio quality) and the resulting data is sent in bursts that are timed in such a way so as not to interfere with other stations using the same channel. An important variation of this system is GSM, formerly known as Groupe Special Mobile (French) but increasingly called Global System for Mobile telephones. GSM is a TDMA system, but also has frequency hopping and encryption features. While TDMA is primarily a North American standard, GSM, which originated in Europe, is rapidly being deployed

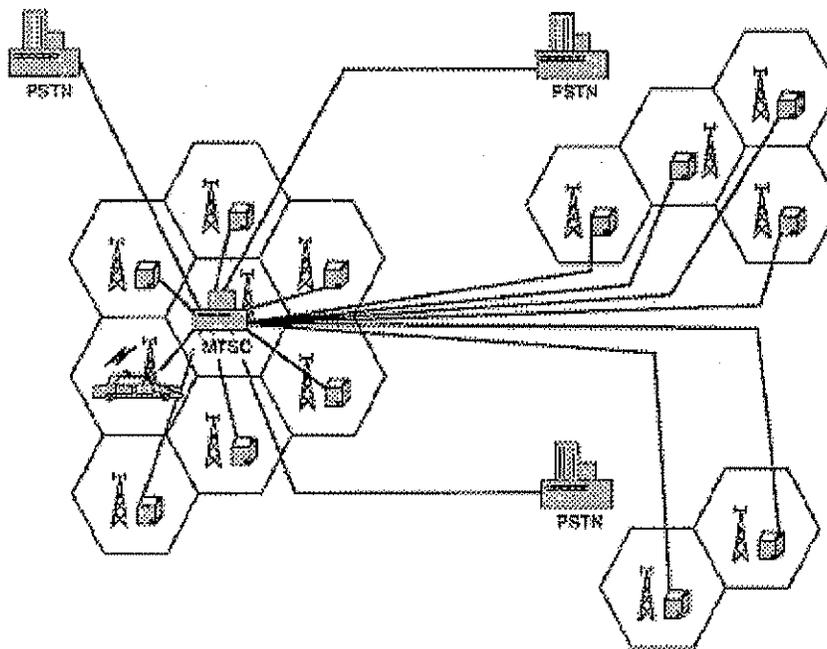
worldwide.

### ***CDMA: Code Division Multiple Access.***

CDMA is a form of spread spectrum transmission, where the digitized voice is combined with a special code that allows several users to share the same portion of the radio spectrum. The different codes allow the various signals to be sorted out at the receiving end. The current CDMA standard was developed by Qualcomm in San Diego.

The major advantage of digital service is increased capacity. Digital services can allow cellular carriers to increase the number of subscribers in a given situation by many times, depending on the system used and the individual circumstances. Other benefits include enhanced privacy from the addition of encryption, and reduction of cellular fraud.

## ***Cellular Transmission***



Cellular telephones get their name from the way the system is set up. Instead of one large base station covering a wide area, cellular systems are divided into many small coverage base station areas called "cells." As a subscriber moves from one cell to the next, the system "hands off" the call to the new cell from the old one. For example, as a mobile unit moves from downtown Los Angeles to Beverly Hills, he may get passed on (handed off) from the downtown LA cell to a Wilshire Blvd. cell, and then on to a West LA cell, and then to a Beverly Hills cell. The hand off is accomplished by sending a

special signal to the mobile unit, which then switches to the new cell.

Why use multiple cells like this? The main reason is frequency re-use. The same channel can be used in more than one cell, as long as the cells don't overlap in their coverage area. This produces a much greater efficiency in channel use, allowing more calls in the system. If a single wide area base station were to be used, 100 channels could support 100 simultaneous calls. If we take that same 100 channels, and divide them up among 100 different cell sites, re-using channels as appropriate, we can support thousands of simultaneous calls; a substantial improvement!

It is the job of the Mobile Telephone Switching Office (MTSO) to make all the connections. The MTSO

is the bridge between the Public Switched Telephone Network (PSTN) and the cell sites that ultimately make the wireless connection to the subscriber's cellular phone. The MTSO not only makes the connections, but also controls all of the cell sites, and manages all of the mobiles via a control channel.

The control channel is used for several functions. Mobiles register with it, so that the system knows where to find them. The system calls mobiles with it, and mobiles initiate calls with it. Once the call is set up, then the mobile moves off to the specific voice channel (or time slot, or code) designated for that call by the system.

Simple, eh? Not hardly, but the cellular system has had many years of refinement to work on getting it right... and it does get it right, at least most of the time...

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[Return to Radio Design Group's Home Page](#)

Last Modified: *January 4, 2001*

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## CERTIFICATE OF SERVICE

I, John A. Prendergast, hereby certify that a copy of the foregoing Opposition of AICC was served this 6<sup>th</sup> day of February, 2007, by hand delivery or by U.S. Mail, postage prepaid, to the following individuals at the addresses listed below, or by email as indicated:

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Washington, DC 20554

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Jonathan S. Adelstein, Commissioner  
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