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August 12, 1994

HAND DELIVERY

William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Room 222
Washington, D.C. 20554

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Re: *In the Matter of Implementation of Sections 12 and 19 of the Cable Television Consumer Protection and Competition Act of 1992 Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming -- CS Docket No. 94-48 -- WRITTEN EX PARTE COMMUNICATION*

Dear Mr. Caton:

I am writing on behalf of The Wireless Cable Association International, Inc. ("WCAI") to provide the Commission with the accompanying copy of "Wireless Cable: A Strong Competitive Threat to Cable Television," a report recently released by Kidder, Peabody & Co., Inc. ("Kidder").

While WCAI does not subscribe to all of the conclusions and predictions reached by Kidder, WCAI believes that this report will provide a valuable addition to the record the Commission is developing in CS Docket No. 94-48 in preparation for the filing with Congress of a report on the status of competition in the video marketplace. In particular, Kidder provides one of the best analyses performed to date on the impact competition from wireless cable is having on entrenched cable systems. As Kidder demonstrates, in Riverside County, CA, the emergence of wireless cable has led to dramatic price reductions in the rates paid by cable subscribers. (See pages 7-8). Along similar lines, Kidder presents the results of a broader 1992 study commissioned by cable operators that found wireless cable is successfully attracting cable's most valuable subscribers by providing service at significantly lower rates or, alternatively, offering additional premium services at no incremental cost from cable. (See page 6).

In short, Kidder confirms that the Commission's pro-competitive policies can work to the benefit of consumers in the video marketplace, at least where the wireless cable operator

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is able to secure the critical mass of channels and programming necessary to offer consumers a viable alternative.

Respectfully submitted,



Paul J. Sinderbrand

Counsel to The Wireless Cable
Association International, Inc.

Enclosure

cc: Hon. Reed E. Hundt
Hon. James H. Quello
Hon. Andrew C. Barrett
Hon. Susan Ness
Hon. Rachelle Chong
James W. Olson
Paul Gallant



July 20, 1994

Wireless Cable A Strong Competitive Threat to Cable Television

Overview

The cable television industry is bracing itself for competition from several different sources: wireless cable (aka MMDS), direct broadcast satellite (DBS), and telephone companies. We believe that over the next several years, wireless, which already has about 500,000 subscribers, will exert the most visible, immediate competitive pressure on cable operators.

We project that:

- wireless will ultimately capture average penetrations of 10% - 15% in markets served by wireless
- 40% of the country's households will have wireless service available to them by the year 2000
- there will be about 4 million wireless subscribers nationally by the year 2000

Wireless is, and always will be, a less expensive, and less sophisticated alternative to cable, and will never be as broad a service. *Wireless represents a new consumer "brand" in the market. It will get its share of the market not because it is "better" than cable, but because for a considerable number of consumers, its price/product package offers a superior value.* Over the next few years, we expect that wireless cable will be a significant factor responsible for depressing cable cash flow growth.

We base our expectations on the early achievements of wireless companies.

- Operators have attained 7%+ penetrations in several flagship operations such as Colorado Springs (operated by American Telecasting), Tucson

(People's Choice TV) and Riverside, California (Cross Country Wireless).

- At the extreme, we are aware of a 5,000 household market (with admittedly terrible cable service and high prices), in which wireless currently has an amazing 30%-35% penetration.

Our expectation of 10%-15% penetration in served communities is below the 20%+ forecasts of some of the industry's most bullish wireless operators. Keeping in mind the purpose of our estimate, i.e., to assess the vulnerability of cable operators to wireless, we would perform sensitivity analyses using the upper end of the 10%-15% penetration range.

The industry has raised approximately \$500 million in the public capital markets in the last 18 months, and has a war-chest large enough to propel operators into the industry's next phase - the "prove it" phase in which they must demonstrate ability to consistently build penetration levels and cash flows. The industry's success in this phase will determine the feasibility of raising additional capital to further deploy wireless throughout the country. This phase will therefore be key in determining how much pressure will be applied upon the cable industry by wireless.

Opinion

It is our view that the cable systems and cable companies that are at the least risk from wireless competition are:

- systems with a large channel capacity, with plentiful national and regional programming, and/or exclusive local programming

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- systems that have strong demographics, with subscribers that are willing to pay for richer programming offerings, new services and/or who do not want an antenna installed on their property
- systems and companies that are able to provide telephony and interactive services
- companies that hold interests in cable programming, cellular telephone, and other media/communications industries

Our overall view of the cable industry is neutral. We have significant concerns not only about upcoming competition from wireless, but from the telcos and DBS as well. Our concerns are offset by two positive factors for the cable industry:

- we believe that cable operators (particularly those with large clusters of systems) will have the option of selling out to the telcos or other cable operators
- cable operators (with large clusters) will be able to provide telephony services to make up losses in video

Keeping in mind our neutral view of the industry overall, we are bullish only on the strongest credits within the high yield universe. These would include Cablevision Systems+, Century Communications, Comcast, Continental Cablevision, and Jones Intercable.¹ We believe that companies such as Adelphia, Cablevision Industries, Falcon Holding and Marcus Cable at present price levels do not offer an attractive return. (See Exhibit 1 for bond price and yield information.)

Given the wireless industry's infancy, projecting the effect of wireless on cable for years to come, is at best, a rough estimate. Cable bond investors should monitor wireless industry developments closely.

Wireless vs. DBS vs. Telcos

Over the next few years, we expect that wireless will pose a greater competitive threat to cable than either DBS or the telephone companies.

- With a capacity of up to 33 channels, wireless is a serious and imminent competitor to cable for one basic reason - wireless can provide the "meat and potatoes" of cable programming, including local television signals, at rates that are often 15%-30% below those charged by cable operators.
- Though DBS is likely to grow dramatically, it is less of a "head-on" competitor with cable:

* it is not a local service; it lacks the channel capacity to retransmit local television signals for all 212 U.S. television markets

* its monthly rates are not likely to be significantly lower than cable's; the DBS installation charge to subscribers currently is \$700 or more

* we expect that DBS will get the bulk of its subscribers from very rural, uncabled areas that are of limited interest to cable operators

- Though telephone companies will ultimately be the most important competitor to cable, the telcos have yet to build their first in-service-area system.² Wireless operators are already conducting business in an estimated 160 systems serving approximately 500,000 subscribers. With the aid of veterans from the cable industry, the wireless industry has already built up a reasonably good infrastructure. (Several decades ago, the television broadcasting industry served as a source for cable staff and operations personnel; today cable is serving as a source for the wireless industry.) It should be pointed out that telephone companies may emerge as joint venturers with, or acquirors of, wireless systems.

Wireless Technology

Wireless systems use microwave frequencies to transmit up to 33 channels to a subscriber's home. Antennas generally have a dish shape, an average diameter of three feet (actual size depends on transmitter power and distance) and would be installed typically on a roof mast.

Wireless's advantages over cable include:

- construction costs are lower
- operating costs are lower
- it often can more easily afford to serve rural and very rural areas
- it is more easily upgradeable to digital
- it generally has better signal quality
- there are fewer service outages
- wireless' rates and operations are generally unregulated

Wireless has lower fixed construction costs relative to cable. In order to pass every home in a community, a cable operator has to make a large investment in headend equipment, fiber, coaxial cable, and amplifiers. Though these costs vary tremendously from system to system, \$600 per home is representative (this does not include the cost of converters or wiring from the street to the TV set).

¹ We are also bullish on Viacom whose cable systems represent a significant portion of their assets.

² Bell Atlantic was granted FCC approval on July 6 to build a 384-channel, video dial-tone system in Tom's River, New Jersey to compete against Adelphia, and has predicted that they will achieve 35% penetration.

In contrast, the fixed cost of a wireless system is quite low; a \$.8-\$1.5 million investment may very well be sufficient to not only build a transmission facility, but also to equip a service facility and administrative offices as well. (See later discussion on subscriber installation costs.)

The wireless operator has lower system operating costs since it only has to operate the transmission facility, known as a headend. In addition to a headend, a cable operator needs to operate and maintain an extensive distribution network.

Wireless operators can afford to serve low-density areas (18-20 homes per mile or less) that cable cannot economically serve. Cable operators have little incentive to extend their cable plant into very sparsely populated areas since they may have to invest \$1,500 per sub or more to extend their plant. In contrast, if a home already is within the broadcasting range of the transmitter, the wireless operator incurs no additional costs because of low density. (The transmitter's range is generally between 20 and 40 miles; topography, antenna size and transmitter strength determine the effective range.)

The wireless industry can more easily upgrade to digital. Not only is there inherently less equipment in a wireless system to replace, the industry's small size (approximately 500,000 subs) limits the amount of capital needed for equipment replacement.

Wireless systems offer generally better signal quality than cable. Even with just a 10-watt transmitter (20 watts is standard, with a maximum of 100-200 watts) the typical wireless subscriber will get a better picture than today's typical cable subscriber. (In a cable system, a signal may pass through 25 or more amplifiers, with each amplifier adding noise to the signal.) Until cable goes digital, wireless will maintain this advantage.

Wireless systems have fewer service interruptions since power is needed at just one location and there are a limited number of components that can fail in a wireless system. A highly-reliable back-up power source can easily be installed for a single site. In contrast, cable operators generally find it uneconomic to provide back-up power to the hundreds, or even thousands of amplifiers in a cable system, and face the prospect of periodic failure of amplifiers.

Wireless's rates and operations are generally unregu-

lated. In contrast, cable operators have been saddled with rate regulation, mandatory service standards, a requirement to sell programming to competitors, and a large, costly administrative burden.

Wireless's actual and/or perceived disadvantages relative to cable include:

- higher subscriber installation costs
- less channel capacity
- inability to serve 100% of homes because of line-of-sight constraints
- technology is inappropriate for telephony
- technology less suited for interactive services
- smaller size makes it more difficult to create customized programming packages
- churn³ could become economic drain
- wireless companies, unlike their "vertically integrated" cable counterparts, rarely hold any interests in programming companies

Wireless has higher subscriber installation costs. The variable cost of connecting a wireless subscriber ranges from about \$350 to \$500.

Comment: Though cable operators may point out that this is much more than the \$100-\$250 cost of installing a cable subscriber,⁴ this compares very favorably to the \$1,000 - \$1,900 debt/sub of most high yield cable issuers. Total per-subscriber wireless costs compare very favorably to all-in costs for cable (see Exhibit 2). As a result, we believe that this disadvantage of high installation cost does not insulate cable operators from competition.

Wireless faces line-of-sight constraints because of the propagation characteristics of radio waves in wireless's 2500-2686 MHz frequency range. A subscriber's antenna must be in a direct "line-of-sight" with the transmission facility. Buildings, hills and even foliage can block transmission.

Comment: As a result of line-of-sight limitations, the first sizeable wireless systems were built in markets such as Corpus Christi, Texas; Riverside, California and Tucson, Arizona. These communities are generally flat and have relatively few large trees or tall buildings. The typical industry benchmark assumes that 75% of homes are within

³ Churn, as used in the cable and wireless industries, is a measure on a percentage basis, of the number of subscribers that are replaced over a certain period of time. A typical churn rate for a cable operator is from the high teens to 25% per year (seasonal markets excluded).

⁴ The average cost will increase about \$100 - \$150 per television set for both wireless and cable when systems are converted to digital.

the line-of-sight. Neither the wireless industry nor the investment community is sophisticated enough yet to quantify differences in this ratio on a market-by-market, or even on a region-by-region basis. Actual experience, particularly in hilly, heavily treed areas as well as urban areas with multi-family housing and office buildings will improve the forecasting accuracy of line-of-sight homes. Improving technology, including the use of small transmitters known as "beam benders," should help improve the ratio of line-of-sight homes.

Wireless technology is inappropriate for telephony. Though wireless has potential for simple interactive applications (see below), wireless cannot expect to share in telephony revenues. Coax in combination with fiber optics will provide a much better return-path than the high frequency 2687-2700 MHz that wireless is expected to use for two-way applications.

Wireless' technology is less suited for interactivity. Though wireless systems can use telephone lines or a simple transmitter at each subscriber's antenna for interactive applications, cable is a more suited medium for the most sophisticated interactive applications. Fiber in combination with coax not only has much greater bandwidth (hence, data carrying ability), but it also has the capability of "narrowcasting" to a neighborhood, or potentially even to a home.

The smaller subscriber base of wireless systems makes it difficult for them to create local programming. Cable has had success in fashioning local news, professional sports and other programming for its largest markets. Few wireless systems are likely to have the economies of scale to afford expensive local programming.

Comment: As stated earlier, our view is that wireless role is to offer the "meat and potatoes" of video service, without offering expensive niche services. With creativity, wireless operators can however assemble inexpensive programming, such as local high school and college sports into potentially popular niche services.

Churn could become a significant economic drain for wireless companies. It is difficult to assess potential churn levels in a two-competitor market for cable-type service. Substantial churn could weaken wireless' competitive position because of its higher installation costs. To date, on the basis of its short operating history, churn levels in

wireless appear comparable to somewhat higher than cable's churn (in a one-provider market). Churn could easily increase as cable operators develop new pricing and packaging to regain subscribers. Churn rates for both industries should be monitored closely.

Programming

The Cable Television Consumer Protection and Competition Act of 1992 ("1992 Cable Act") solidified the ability of wireless companies to get programming. Even prior to the passage of this legislation, wireless companies were becoming increasingly adept in getting access to almost all services available on cable. Other than regional sports channels, the only prominent holdout was the Turner Network Television service ("TNT"). TNT, a movie service, was denied to wireless operators because of its exclusive contract with the cable industry.

The 1992 Cable Act virtually eliminated any remaining difficulties of getting programming. This act requires that so-called "vertically integrated" programming suppliers (those programmers which have a cable operator as a 5% owner) provide programming to wireless cable and other video distributors on a non-discriminatory basis. As stated in Section 19 of the 1992 Cable Act, vertically integrated cable operators may not enter into "exclusive contracts for ... programming between a cable operator and a ... vendor that prevent a multichannel video programming distributor from obtaining such programming." The exceptions to this rule are strictly limited, we expect that application of the rules will allow wireless operators to get all programming but for very local material such as local cable news channels.

Even if the programming provisions of the 1992 Cable Act were eliminated by some new law (which we think is unlikely in the foreseeable future), we expect that the public's continuing strong desire for competition to cable would ensure access to programming for wireless operators. *Even so, wireless companies have less control over their programming. As a result, wireless companies will face more programming price risk than will vertically integrated cable operators.*

Wireless Strategy

The wireless industry's first priority is to exploit non-cabled areas. There are published estimates of as little as 4 million and as many as 12 million homes uncabled by cable. (In our view, the higher estimate is more accurate.) We are aware of actively marketed, uncabled areas, in

which wireless has been able to achieve penetrations of 50% or more. Wireless' strategy will be to establish a beachhead in these uncabled areas.

The industry's second priority is to pursue subscribers in cabled areas. Wireless operators try to differentiate themselves from the local cable operator in any number of ways:

- charge lower rates, strategically designing programming/pricing combinations that exploit any unusually high pricing by the cable operator
- provide, better more responsive service, including faster installs, longer customer service hours, etc.
- to a lesser extent, create new programming packages (movies, local sports, etc.) to differentiate wireless from cable

A 1992 survey commissioned by some of the nation's largest cable operators of wireless subscribers revealed a number of interesting facts:

- Over 70% of former cable customers that had switched to wireless were premium channel subscribers; even more significant, two-thirds had subscribed to more than one premium service.
- Wireless subs in comparison to cable subs were:
 - * Younger (as indicated by age of head-of-household)
 - * Higher income (\$42,300 mean household income)
 - * More likely to have children at home (68% with children)
- In markets studied, wireless operators focused their efforts on the marketing of a combined basic/pay package. Wireless subscriber bills were \$29.60 on average, while cable sub bills were virtually identical at \$29.50. Wireless subs remembered paying an average \$37 per month previously as cable subscribers. At similar price points, wireless subs could get one or sometimes two additional pay services without an increase in their monthly rate by switching to wireless.
- Among former cable subs, the lower cost of wireless was the single largest factor in choosing between cable and wireless; 69% said cost was "very important" (on a scale of 1 to 10, they registered a "9" or a "10").
- A full 50% said that "wireless reception" was a very important consideration (again, "9" or "10" on a 1 to 10 scale).

In short, wireless is pursuing "cable's best customers" - single-pay and multi-pay subscribers. These subscribers are being enticed to switch to wireless with offers of much lower rates or alternatively, additional pay services at no incremental cost from their present cable bill.

Wireless is least capable (at the moment) of attracting the customer who wants the larger number of channels that may be available via cable. With a maximum of 33 channels, wireless can not hope to offer all of the niche basic and pay services found on larger cable systems that offer from 36 to 70 channels or more of service.

However, several things should be remembered:

- Both wireless and cable will be able to increase capacity by incorporating digital compression; it may be possible to create 4-10 channels for each of today's analog channels.
- Because the electronics of a wireless system are concentrated in just one location, the wireless industry believes that it will be more easily capable of switching to digital than cable.
- In very rural markets, the competing cable system may have a channel capacity of only 20-36.

As mentioned before, up to 33 wireless channels are available in each market. The FCC has limited licensing so that a single operator could only own four channels in a market. However, the wireless operator may lease channels from other commercial license holders as well as educational institutions.

A wireless operator might be precluded from getting all 33 of the channels for any of several reasons: the channels may be in use for some educational or other purpose (particularly in larger cities), the license holder may choose not to lease, or a competing wireless operator may have already secured channels in its attempt to launch a wireless service or simply to control channels. The wireless operator may find that an adjacent market's signal causes interference with the operator's signal in the service area's fringes; a buy-out may become necessary. *While the FCC is the cable television industry's worst nightmare, for some wireless operators, the channel licensing and gathering process is their nightmare.*

Some wireless companies such as American Telecasting will launch wireless service with as few as 12 channels

(establishing a beachhead, and pressuring other license holders to lease to ATI), while others will wait till such time that they have assembled some larger number of channels, 20-26 for example. In rural, uncabled areas in particular, a wireless operator can offer a far smaller number, and still get solid penetration levels.

Many operators have chosen to retransmit local television channels on the wireless system in order that the customer is assured of getting a quality signal for all channels. Other operators, particularly in markets where there are many off-air signals will instead install a VHF/UHF antenna with the wireless antenna.

Though the installation of a VHF/UHF antenna increases installation cost, this can free up from three to as many as 18 channels (in a market with very many off-air signals such as Los Angeles) for cable-type programming. Though the quality of the off-air signals may not be as high as that of the other channels, the improving quality of television antennas in combination with professional installation minimizes this difference in quality.

In the event of a subscriber disconnect, approximately 65%-75% of the \$450 or so investment for the antenna, electronics at the antenna (a so-called down-converter) and a set-top box is recoverable. This is in contrast to the typical \$170 average investment in a cable install (of which \$100 for the set-top box is recoverable). Though the marginal cost of a cable install is significantly lower than for wireless, wireless' cost is still sharply lower than the \$1,000-\$1,900 debt/sub that high yield issuers most typically have.

Case Study - Wireless Cable in Riverside County, California

The Riverside, California system operated by Cross Country Wireless provides a good example of a reasonably well-entrenched wireless operator, and the effect wireless has had on cable. Cross Country has positioned itself as the less-expensive alternative to cable.

With just 25 subscribers on 1/1/91, as shown in the adjacent column, it had grown to 41,500 subscribers by 3/31/94.

Riverside, CA Wireless vs. Cable	Actual Subs 1/1/91	Expected Subs @1.5% Annual Growth on 3/31/94	Actual Subs on 3/31/94	Estimated Shortfall Due to Wireless
Wireless Operator (Cross Country)	25	n.a.	41,500	n.a.
Three Largest Cable Operators (TCI, Comcast, Crown Media)	201,000	211,200	189,000	22,200 (10.5%)
Pay/Basic (TCI only)	76%		135%	

As shown above, we have estimated that the presence of the wireless operator has reduced the subscriber count by an estimated 22,200, a loss of 10.5%. This is based on the assumption that the sub count would have grown 1.5% per year but for pressure applied by the wireless operator. Our 1.5% estimate is lower than the typical 2.0%-2.5% annual sub growth rate seen in recent years in this type of system because of the particular weakness of the Riverside economy in recent years.

TCI owns a system in Riverside through a small affiliated entity, American Cable Television Investors 5, L.P. which just happens to file 10Qs and Ks. The pressure on TCI's Riverside system seems to be quite substantial:

- As reported, the Riverside system sustained a drop from the 19,200 sub level in June 1992 to a low of 16,400 subscribers in March 1993. This loss of 2,800 subs represents a loss of 14.1%, somewhat in excess of the 10.5% estimate above. (The subscriber count subsequently recovered to 18,200 as of March 1994, a drop of 5.2% from its peak in June 1992.)
- As revealed in the above-mentioned 10Qs, because of competitive pressure, TCI was forced to replace its broad basic service with a less expensive, more limited basic service. In addition, TCI eliminated the "buy-through" requirement that subscribers purchase expanded basic to receive a pay service.
- Cross Country's ability to get cable's best pay customers is evidenced by their pay-to-basic ratio of 225%; this is three times the cable industry average of 74%. It should be noted that TCI's pay-to-basic ratio in Riverside was most recently 135%, this represents an increase from the 76% level it had as of 1/1/92. The pay ratio has improved because TCI has lowered pay rates in response to competition.

The following chart compares rates for the wireless operator with rates charged by three of the largest cable operators in the market.

	Cross Country			
	Wireless	TCI	Comcast	Crown
Full Basic	\$18.95	\$23.21	\$29.12	\$33.39
Difference	-	\$4.26	\$10.17	\$14.44
%Difference	-	-18.4%	-34.9%	-43.3%
# of Basic Channels	26	49	50	45
Basic + 2 Pays	\$27.95	\$35.07	\$30.64	\$42.48
Difference	-	\$7.12	\$2.69	\$14.53
%Difference	-	-20.3%	-8.8%	-34.2%

Notes:

- (1) Cost includes any franchise fees and/or sales tax.
- (2) The "Full Basic" rate consists of basic service, a remote, a converter box, and a program guide (TCI does not offer program guides, no price adjustment made).
- (3) The "2 pay" option includes all of the above, plus two pay services. Cross Country's pay rate is assumed to be \$5.50, which is the average of their \$7 charge for HBO and \$4 for other pay services.
- (4) Cross Country charges \$5.95 for an additional outlet, this is higher than the typical \$.70-\$3.50 charged by the cable operators (price includes a converter) for a basic additional outlet. The cable operators may however charge an additional fee to provide pay services on additional outlets.
- (5) Crown and TCI packages Disney with two other pays in their two-pay packages; it is not possible to exclude Disney from this package. While Disney is highly valued in homes with children, it is of limited interest in other households. We have adjusted Comcast's and Crown's prices down \$5 to reflect the additional value of Disney. This estimate is intentionally high, and probably overestimates the average perceived value of Disney.

It should be pointed out that the competing cable operators have dramatically reduced multi-pay rates in response to competition from wireless. Some three-pay packages have been marked down as much as \$18, with two-pay packages marked down \$10-\$14.

We would expect that the cash flow for the Riverside cable operators is over 30% lower because of wireless cable. Our estimate is based on the following:

- 18% drop in cash flow due to loss of 22,200

- subscribers to 189,000 from a projected level of 211,200 (see previous table) (10.5% loss of subs)
- 13% drop in cash flow due reduction in margins from lower pricing, higher marketing expenses, etc.

TCI's Riverside system's annualized cash flow dropped 33.2% from 1992 to the first quarter of 1994.⁵ Though it is difficult to isolate the effect of wireless from other factors such as the first round of rate regulation, these results seem to indicate that our above-mentioned estimated cash flow hit of 30%+ is reasonable.

Expected Long Term Cable Response to Wireless

In contrast to the never ending price-wars that have sometimes occurred in overbuild attempts by a second cable operator in a market, we do not expect escalating price wars with wireless operators. We would expect wireless operators to "win" in a price war (to the extent that "winning" is possible in such a situation). We expect (and hope) that competition will develop in areas other than price. On a long term basis we expect that cable operators will:

- take advantage of their greater channel capacity to introduce more national services, and will multiplex⁶ current basic and pay service
- produce and assemble unique local/regional programming that would not be available to wireless
- introduce interactive and other services that are more easily delivered by cable than wireless
- improve their marketing and service efforts

Again, since the wireless industry is in its infancy, the effect of competition on pricing should be closely monitored.

American Telecasting

American Telecasting ("ATI") led the way with the first public high yield financing in the wireless industry. As the nation's largest wireless company, ATI has a presence

⁵ Wireless operations in Riverside were ramping up in 1992; unfortunately cash flow data for TCI's system is not available for any earlier periods.

⁶ The term "multiplex" refers to creating different versions of existing programming. For example, HBO could create (and has already introduced in some markets) several channels of HBO that simply offer the same programming as the original channel, but at different times. In contrast MTV and QVC could segment their music / merchandise with different versions of the base channel. Multiplexing takes advantage of the fact that there are tremendous economies of scale in creating additional channels; it has been estimated that the cost of operating certain kinds of second channels raises costs as little as 5% for the programmer.

in 45 markets. This includes 20 operating systems, the pending acquisition of six systems,⁷ and licenses and pending acquisition of licenses in 21 markets. Listed below are the Company's largest markets.

	Homes	Subscribers 3/31/94
Denver, CO	835,000	5,000
Portland, OR	593,000	TBC
Orlando, FL	465,000	6,500
Columbus, OH	439,000	100
Seattle, WA	394,000	TBC
Oklahoma City, OK	381,000	13,300
Jacksonville, FL	353,000	UC
Louisville, KY	323,000	300
Toledo, OH	304,000	2,900
Fresno, CA	286,000	8,000 P
Youngstown, OH	249,000	0
Lakeland, FL	223,000	10,800 P
Omaha, NE	241,000	TBC
Bradenton, FL	224,000	TBC
Fort Meyers	213,000	6,400
Total	8,822,000	95,500
(Including other markets not listed)		

Key:

P - Pending Acquisition
TBC - To Be Constructed
UC - Under construction

The company's operations are concentrated in Colorado, Florida, California and the mid-west. As of the quarter ending 3/31/94, five of its systems were cash flow positive. Its oldest system, Colorado Springs, is achieving a margin which we estimate is currently in the low 30s, (the margin was 29% in the first quarter, even with the high marketing expenses incurred in this period of high growth). With 12,100 subscribers in a market of 166,000, homes, it has 7.3% penetration.

The company has used the proceeds from its IPO as well as its debt offering to continue its aggressive acquisition of new markets; ATI is considered by many to be the pacesetter for system pricing. The company anticipates that undeveloped wireless licenses will continue their very rapid rise in value, and that future acquisition opportunities will be more limited.

As can be seen in Exhibit 3, American Telecasting's equity market valuation is 67.8% of total debt + equity. Additional debt is permitted to the extent that:

- pro forma debt-to-cash flow is below 5.0
- pro forma debt is less than either:

- * \$7.50 per home
- * \$500 per subscriber

On or before 6/30/97, the new 12.5% notes are not included in the calculation of debt. On the basis of the \$7.50 per home test, ATI can borrow a total of \$166.2 million; current debt is \$114.2 million.

Opinion on American Telecasting

American Telecasting's bonds have slipped to a 50.5 bid from their issue on June 16 at 54.687. The weakness has been in parallel with the recent decline in wireless equity securities. We believe that equity investors may have become concerned with slower than anticipated progress in activating systems and adding subscribers. We suggest that cable bond investors do not take too much comfort in this slowness since the delays are probably just a part of the "growing pains" of launching this new industry.

As mentioned earlier, American Telecasting is among the most aggressive wireless operators. Their unabating acquisition of additional systems will slow down credit improvement over the next few years. This factor, in combination with weak technical support for the bonds leads us to a neutral opinion of the company's bonds. Even so, we believe that once the company demonstrates a pattern of solid subscriber growth, which should happen no later than year-end, that investor concerns will diminish quickly. We believe that the securities are fairly priced at current levels.

American Telecasting - Description of Securities

Securities Offered: \$183 million (at maturity) senior discount notes with warrants, unsecured
 Issuer: American Telecasting, Inc. (holding company)
 Gross Proceeds: \$100 million
 Use of Proceeds: \$60 million for pending acquisitions, remainder for acquisitions and general corporate purposes
 Issue Price: 54.687
 Maturity: June 15, 2004
 Coupon: 0% / 12.5%, cash interest accrues beginning 6/15/99.
 Warrants: 5 five-year warrants per bond, approximately 5.7% on a fully-diluted basis (approximately 5% pending consummation of acquisitions), detachable no later than 9/21/94
 Exercise Price: \$21.18 per share
 Change of Control: 101% of accreted

⁷ American Telecasting announced that it terminated its agreement to purchase a system in Las Vegas on July 18.

Select Cable Company Issues

<u>Issuer</u>	<u>Coupon</u>	<u>Maturity</u>	<u>Description</u>	<u>Size (\$MM)</u>	<u>Price</u>	<u>YTW</u>	<u>YTM</u>
Adelphia Communications	9.88%	3/15/02	Senior Notes	130.0	85.50	12.36%	12.36%
	11.88%	9/15/04	Senior Notes	125.0	97.25	12.35%	12.35%
	12.50%	5/15/02	Senior Notes	400.0	99.25	12.65%	12.65%
Cablevision Industries	9.25%	4/1/08	Senior Debentures	200.0	87.75	11.00%	11.00%
	10.75%	1/30/02	Senior Notes	300.0	98.75	11.00%	11.00%
Cablevision Systems	9.88%	2/15/13	Senior Subordinated Debs	200.0	91.75	10.92%	10.92%
	10.75%	4/1/04	Senior Subordinated Notes	275.0	100.50	10.60%	10.66%
	14.00%	11/15/03	Senior Subordinated Notes	200.0	101.75	9.48%	13.65%
Century Communications	0.00%	3/15/03	Senior Notes	440.0	39.75	10.97%	10.97%
	9.75%	2/15/02	Senior Subordinated Notes	200.0	96.00	10.53%	10.53%
	11.88%	4/15/03	Senior Subordinated Notes	204.0	104.25	10.69%	11.12%
Comcast Cable	9.50%	1/15/08	Senior Subordinated Notes	200.0	89.75	10.97%	10.97%
	10.25%	10/15/01	Senior Subordinated Notes	125.0	98.25	10.60%	10.60%
	10.63%	7/15/12	Senior Subordinated Notes	300.0	97.00	11.01%	11.01%
Continental Cablevision	9.00%	9/1/08	Senior Debentures	300.0	89.50	10.44%	10.44%
	9.50%	8/1/13	Senior Debentures	525.0	90.50	10.68%	10.68%
	12.68%	11/1/04	Senior Subordinated Notes	350.0	107.50	8.01%	11.60%
Falcon Holdings	11.00%	9/15/03	Senior Subordinated Notes	182.6	94.50	12.17%	12.17%
Jones Intercable	10.50%	3/1/08	Senior Subordinated Debs	100.0	99.75	10.53%	10.53%
	11.50%	7/15/04	Senior Subordinated Notes	160.0	105.75	10.19%	10.55%
Marcus Cable	11.88%	10/1/05	Senior Debentures	100.0	95.00	12.72%	12.72%

(1) Prices - bid side as of 7/19/94.

Construction Cost Comparison Cable Vs. Wireless

	<u>Typical Cable Market</u>	<u>Typical Wireless Market</u>
Households	30,000	150,000
Headend, Central Facility (\$ Mill)	1.0	1.0
Fixed Cost/Home	\$600	-
Total Fixed Costs (\$Mill)	19.0	1.0
Variable Cost/Subscriber	\$170	\$450
Assumed Penetration	65.0%	7.0%
Subscribers	19,500	10,500
Total Variable Costs (\$Mill)	3.3	4.7
Total Fixed + Variable Cost (\$Mill)	22.3	5.7
Total Fixed + Variable Costs/Sub	\$1,144	\$545

EXHIBIT 2

Wireless Cable Market Overview

	<u>American Telecasting</u>	<u>People's Choice TV Corp</u>	<u>ACS Enterprises</u>	<u>CAI Wireless Systems</u>
Potential Households (000)	8,822	5,586	3,700	5,500
Potential LOS (000)	6,617	4,508	2,700	4,125
Current Subscribers (000)	95.5	25.1	41.0	4.30
Penetration Rate	1.4%	0.5%	1.5%	0.1%
Monthly Revenue/Subscriber	\$28.31	\$29.64	NA	\$29.92
Enterprise Value/Potential Household	\$33.92	\$36.22	\$29.45	\$23.72
Enterprise Value/Potential LOS	\$45.23	\$44.90	\$40.35	\$31.62
Enterprise Value/Subscriber	\$3,134	\$8,061	\$2,657	\$30,334
Shares Outstanding (000)	16,656	9,057	10,116	14,900
Stock Price (7/18/94)	\$14.50	\$24.50	\$11.50	\$10.00
Market Value of Equity (000)	\$241,512	\$221,900	\$116,333	\$149,000
Total Debt (000)	\$114,245	\$108,139	\$8,499	\$4,787
Cash (000)	\$56,504	\$127,713	\$15,880	\$23,350
Enterprise Value (000)	\$299,253	\$202,326	\$108,952	\$130,437
Debt/Subscriber	\$1,196	\$4,308	\$207	\$1,113
Debt/ Household	\$12.95	\$19.36	\$2.30	\$0.87
Debt/LOS Household	\$17.27	\$24.00	\$3.15	\$1.16
Debt/Debt + Market Equity	32.1%	32.8%	6.8%	3.1%

Notes:

- (a) Unless noted, data is pro forma for quarter ending 3/31/94, annualized.
- (b) American Telecasting is pro forma for recent and pending acquisitions and the issuance of \$100 million Senior Notes with Warrants as defined in the prospectus. LOS Households are estimated at 75% of total households. Monthly revenue per subscriber represents the average pro forma monthly revenue (calculated based on average pro forma subscribers for the period found in the Company's prospectus) for the six months ended June 30, 1993.
- (c) People's Choice is pro forma as stated in Sr. Discount Note S-1 filed June 30, 1994. Shares outstanding pro forma for the acquisition of Specchio Developers Investment Corp. SDIC received 971,498 shares of PCTV common stock for its 1.015 million shares of Preferred Entertainment. Potential households and line of sight homes adjusted to reflect the 22.6% ownership of Preferred Entertainment.
- (d) CA I is pro forma for the acquisition of channel rights in Syracuse and Buffalo to reach 750,000 line of sight homes.

EXHIBIT 3

Wireless Cable Equity Market Overview

	<u>CableMaxx, Inc.</u>	<u>Heartland Wireless</u>	<u>Preferred Entertainment</u>	<u>Wireless Cable of Atlanta</u>
Potential Households (000)	2,143	4,270	2,012	NA
Potential LOS (000)	1,680	3,600	1,703	NA
Current Subscribers (000)	25.0	3.8	11.3	6.4
Penetration Rate	1.4%	0.1%	0.6%	NA
Monthly Revenue/Subscriber	\$30.27	\$27.90	\$18.76	\$22.95
Enterprise Value/Potential Household	\$25.23	\$24.43	\$26.62	NA
Enterprise Value/Potential LOS	\$32.19	\$28.98	\$31.69	NA
Enterprise Value/Subscriber	\$2,163	\$27,452	\$4,776	\$3,082
Shares Outstanding (000)	8,800	10,752	4,500	1,729
Stock Price (7/18/94)	\$6.75	\$11.50	\$15.00	\$12.50
Market Value of Equity (\$000)	\$58,050	\$123,650	\$67,500	\$21,613
Total Debt (\$000)	\$3,050	\$0	\$1,428	\$0
Cash (\$000)	\$7,022	\$19,332	\$14,961	\$1,875
Enterprise Value (\$000)	\$54,078	\$104,318	\$53,967	\$19,738
Debt/Subscriber	\$122	\$0	\$126	\$0
Debt/ Household	\$1.42	\$0.00	\$0.71	\$0.00
Debt/LOS	\$1.82	\$0.00	\$0.84	\$0.00
Debt/Debt + Market Equity	4.9%	0.0%	2.1%	0.0%

- (e) CableMaxx is pro forma for approx. 500,000 LOS homes for Salt Lake City and El Paso purchased for \$14.7 million. Excludes 5 markets that were optioned from OmniVision for \$9.5 million with approx. 770,000 LOS.
- (f) Preferred Entertainment - average monthly subscriber revenue for the three months ended March 31, 1993. Represents a weighted average for Optional MDU's and Bulk MDU's, the average monthly revenue per subscriber of which was \$27.40 and \$13.18, respectively.

EXHIBIT 3 (cont.)