

THE STATE OF NEW YORK)

COUNTY OF NEW YORK)

AFFIDAVIT OF JOHN F. TALT

KNOW ALL MEN BY THESE PRESENTS:

BEFORE ME, the undersigned authority, personally appeared John F. Talt, who after being duly sworn, did state under oath as follows:

"My name is John F. Talt. I am over the age of eighteen (18) and I am fully competent to make this affidavit in all respects. The facts and opinions contained herein are true, correct, and based upon my personal knowledge.

I am an undercover agent working for Argus Protective Services, Ltd., with offices at 10 West 66th Street, New York, New York, ('Argus'). Argus is currently under contract with NYNEX Mobile Communications Corporation ('NYNEX Mobile') to perform certain investigative services relating to unlawful use of cellular telephones.

On Wednesday, May 3, 1995, at 1230 hours, I entered the business establishment of Cellular Emulation Systems, Inc., ('CES'), Store 'J,' 8025 Jericho Turnpike, Woodbury, New York, and engaged in a conversation with a white male employee, age 40-50 years, approximately 5'9" in height, medium build, salt and pepper hair, who subsequently identified himself as Alan Gedachian, President of CES. I stated that I worked for McCann Enterprises and that my boss, Mr. McCann, wanted to purchase a cellular telephone with the same phone number. I then handed Gedachian an Audiovox Prestige Model 100 cellular telephone, (Telephone Number: 212-273-3534, HEX Format ESN: 8A0F239B), which belonged to Mr.

Jack McCann (one of Argus's owners) and registered with NYNEX Mobile under the account name 'McCann Enterprises.' Gedachian examined the phone and then stated that the most effective way to accomplish this would be to switch carriers. Gedachian explained that if McCann agreed to switch to CellularOne, the new phone would cost approximately \$20 and the emulation would cost \$289.95 because he (Gedachian) would get a commission from CellularOne which he could apply to the cost of the new phone. Gedachian explained further that if McCann kept NYNEX Mobile as his carrier, the new phone would cost \$325 and the emulation charge would be the same, \$289.95. I told Gedachian that I would check with McCann before proceeding with the emulation and exited the store.

On Saturday, May 6, 1995, at approximately 1530 hours, I returned to the CES store and told Gedachian that McCann wanted to keep the NYNEX phone number and purchase an additional phone with the same number. Gedachian stated that he couldn't do it before Monday because it required an ESN change. Gedachian then placed a local telephone call which was answered by 'Martha' and asked to speak to 'Cory.' Gedachian then asked 'Cory' how to go about the emulation while keeping the same NYNEX number. Gedachian also asked 'Cory' if there was an additional charge for 'doing an ESN change.' After Gedachian hung up, he told me that NYNEX Mobile would charge \$25 for the ESN change which would appear on the next bill. Gedachian then proceeded to fill out a 'Work Order Application' (Exhibit A), and advised me that he would need photocopies of McCann's driver's license and a NYNEX Mobile bill prior to completing the emulation. Gedachian then asked me to call on Monday to arrange to pick up the new phone and I exited the store.

On Tuesday, May 9, 1995 at 1900 hours, I returned to the CES store and gave Gedachian a photocopy of McCann's driver's license and a photocopy of a monthly bill for the Audiovox phone in the name of 'McCann Enterprises.' Gedachian then gave me a Motorola 'DPC550' Personal Cellular Telephone in what appeared to be the original carton. On the inside of the Motorola phone were affixed

two tags. The uppermost tag bore the following information: 'FCC ID: 1HDT5RD1,' 'MOTOROLA, INC. MADE IN USA,' 'F09HLD8416AG' and '674GSUV236.' The lower tag bore the following numerical information and bar codes: '82641CB8,' 'SUF1228A' and '4227D630QUM0.' I paid Gedachian the sum of six hundred sixty-seven dollars and twenty-two cents (\$667.22) in cash, and Gedachian then proceeded to give me general operating instructions for using the new phone.

I asked Gedachian what would happen if the two phones were used at the same time. Gedachian replied that only one phone can be powered-up at any given time, and that if, when attempting to make a call, I heard a fast busy signal that meant that someone is using the other phone, and that I should hang up immediately. He further stated: 'Don't go listening to fast busy signals, otherwise NYNEX will pick up the dual signal. They have the legal right to shut the number off -- they're presuming your number was pirated.' I asked if I could get into trouble if I used two phones at the same time. Gedachian responded: 'Yup, you can. You're only paying for one number. You only get to use one phone at a time -- don't screw with my technology.' He further stated that: 'This guy just had somebody that that happened to.' Gedachian gave me a receipt for the new phone and emulation service (Exhibit B) and a flyer describing special instructions for the use of emulated phones (Exhibit C). I then exited the store with the Motorola phone.

Upon my return to Argus's offices, I placed the Motorola phone in the office of Mr. Joseph Nikola, one of Argus's owners. On May 16, 1995, Mr. Garry Sutcliffe from NYNEX Mobile came to Argus's offices and was permitted to examine the Motorola phone in my presence.

Further affiant sayeth not.'

John F. Talt
John F. Talt

SUBSCRIBED AND SWORN TO BEFORE ME, the undersigned authority, on this 19th day of
May, 1995.

John J. Collins
Notary Public

JOHN J. COLLINS
Notary Public, State of New York
No. 01CO5037445
Qualified in Queens County
Certificate filed in New York County
Commission Expires December 27, 1996



EXHIBIT A

WORK ORDER APPLICATION

PRIMARY PHONE / MAKE Audiovox MODEL PR 100
 PRIMARY ESN 13800992155 SERIAL NO _____
 SECONDARY PHONE / MAKE MOTOROLA MODEL APC 550
 SECONDARY ESN 82641C B8 SERIAL NO _____

The ESN should be on the customer's purchase order form. If you cannot locate the ESN, call the carrier and request it. Send the SECONDARY PHONE with the following information:

DEALER NAME: Cellular Emulation Systems, Inc.
 ADDRESS: 8025 Jericho Tpke., Store "J", Woodbury, NY 11797
 TEL/FAX: (516) 921-3100 / (516) 921-3635

CARRIER NAME NYNEX LOCATION: N.Y.
 CUST. NAME JACK Mc CANN / ENTREPRISE J ADDRESS 2716 SCHURZ AVE
 CITY BRONX STATE N.Y. ZIP CODE 10465
 CELL. TEL. NO. (212) 273-3534
 HOME TEL. NO. ^X (718) 931-1285 WORK TEL. NO. ^X (718) 931-1285

CERTIFICATION:

Under penalty of perjury and fraud, I hereby certify that I am the user authorized by the herein named carrier company for the above primary ESN. I further certify that all the equipment connected to this line will be used in a legal manner and hereby agree to indemnify CES, INC. of all liabilities and responsibilities which may be incurred by the use of this line equipment and enhancements without reservation.

AUTHORIZED USER [Signature] (LS) DATE 5/8/95

DRIVER LIC. NO. M03080 31934 521562 45 STATE NY

AGENT/DISTRIBUTOR CELLULAR EMULATION SYSTEMS, INC. A/D NO. _____

DISCLAIMER:

CES, Inc. reserves the right to make changes to its products to improve reliability, function or design. CES, Inc. does not assume any liability arising out of the application, use, non-use or of any local, state or federal laws or its products described herein; nor does it convey any license under its patents, copyrights, trade secrets, permission or the rights of others to copy its features, designs, documentation or software, and in no instance shall the liability of CES, Inc. exceed the amount paid by the user. Copyright, infringements, and theft of services are federal crimes carrying felony penalties for which violators will be prosecuted to the fullest extent of the law.

REV. 09/94

HOW DOES IT WORK?

1. To take advantage of this new service, simply:
 - A. Read thoroughly.
 - B. Complete information on reverse.
 - C. Initial where indicated on front.
 - D. Sign reverse.
2. This technology is designed to be used by one person who would like to use multiple phones on one cellular phone number. (Initial) _____
3. If two people share one cellular phone number, situations could arise in which the incoming calls could reach the wrong party or be possibly unanswerable, or outgoing calls may not be completed.

EXAMPLE:

- A. To receive incoming calls it is important that only one designated phone be powered on at any given time. If both phones are on, incoming calls may be unanswerable.
- B. If two outgoing calls are being attempted at the same time, it may be that neither call will go through.
- C. If a call is in progress on one phone (IN USE) and an outgoing call is attempted on the other phone, the outgoing call may not be completed. End call attempt, then try again later. There will be no effect on the call that was originally in progress.
- D. If phones will be used by more than one party, it is suggested that a system be devised for their use. (Initial) _____

WHAT COULD ARISE?

1. **STOLEN OR LOST PHONE**
 - A. If the PRIMARY PHONE is lost or stolen:
 1. Report loss (giving the ESN) to the police and insurance co.
 2. Do not use SECONDARY PHONE. Have the ESN reversed (\$20.00).
 - B. If the SECONDARY PHONE is lost or stolen:
 1. Report the loss to CES, Inc.
 2. Go to the cellular carrier and request that your cellular phone number be changed.
2. **SELLING A CAR WITH AN INSTALLED PHONE**
 - A. Removal and reinstallation can be performed by CES, Inc. (\$100.00)
 - B. If PRIMARY PHONE is in the car being sold, have the SECONDARY PHONE's emulation reversed (\$20.00).
 - C. If SECONDARY PHONE is in car being sold, have SECONDARY PHONE's emulation reversed (\$20.00) and notify carrier of the new ESN.
3. **PHONE NEEDS TO BE SERVICED**
 - A. If PRIMARY PHONE, return it to where it was originally purchased or to a service center.
 - B. If SECONDARY PHONE, have the emulation reversed (\$20.00), and return it to where it was purchased or to a service center. (Initial) _____

CELLULAR EMULATION SYSTEMS, INC.
8025 Jericho Tpke., Store "J", Woodbury NY 11797
TEL (516) 921-3100 FAX (516) 921-3635

Rev. 09/94

EXHIBIT C

CUSTOMER NAME:

M.A. McCANN.

DATE:

5/9/95

WELCOME TO THE WORLD OF CELLULAR EMULATION SYSTEMS, INC. TECHNOLOGY

Your phone now has the latest CES, INC. technology installed, which allows you to have more than one phone on the same number. This technology has been available for several years but has been too expensive for a Carrier to provide. CES, INC. has broken that barrier!

With CES, INC., your phone has the original security. The original manufacturer's software has not been changed nor has anything been added physically to the phone which may violate its FCC type approval.

SPECIAL NOTICE !!!

It is important to note that ONLY ONE PHONE BE ON AT A TIME. Should more than one phone be on at the same time, you may be in violation of your Carrier's tariffs and in some instances, service may then be terminated. DO NOT TAKE BOTH PHONES ON ROAM! FRAUDWATCH Programs WILL DEACTIVATE YOUR NUMBER!!!

This technology was provided for you from information provided by you and at your request. CES, INC. is not liable for:

- (1) The use or non-use of the phones.*
- (2) Any failure to observe any laws or regulations.*
- (3) Any use which may constitute theft of services.*
- (4) Any use for fraudulent purposes.*

If you encounter any problems, call (516) 921-3100 for assistance.

STOLEN PHONES AND OTHER SPECIAL CIRCUMSTANCES

Should your PRIMARY (ACTIVATED) phone be stolen, report this to your Carrier immediately. DO NOT attempt to use the SECONDARY phone since it will be blocked by the Carrier and any attempt to use the line may result in you being investigated for using a phone on a line that has been reported stolen.

Should your SECONDARY (EMULATED) phone be stolen, request your Carrier to change your number. When this change is made, reprogram your new phone number onto the new SECONDARY phone and you may then begin to use it. Before you buy another phone (with the proceeds from your insurance company), please call CES, INC. We will advise you as to the procedure of making the two phones compatible.

Should you decide to sell your SECONDARY (EMULATED) phone or return it to the manufacturer for any reason, please call CES, INC. and we will reset the phone to its original ESN. There will be a nominal charge plus freight and handling charges for this service.

CES, INC. ***** MAKING TOMORROW'S TECHNOLOGY AFFORDABLE TODAY!

Exhibit B

Cellular Communications System
Mobile Radio Service, Cellular
Rules, Amendment of

Parts 2 and 22 of rules amended to provide licensing and operation of cellular communications systems. Commission believes it has established a framework to meet the public's needs for mobile communications for the foreseeable future with minimum regulation. CC 79-318

FCC 81-161

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION

WASHINGTON, D.C. 20554

In the Matter of

An Inquiry Into the Use of the Bands 825-845 MHz and 870-890 MHz for Cellular Communications Systems; and Amendment of Parts 2 and 22 of the Commission's Rules Relative to Cellular Communications Systems

CC Docket No.
79-318

REPORT AND ORDER
(PROCEEDING TERMINATED)

(Adopted: April 9, 1981; Released: May 4, 1981)

BY THE COMMISSION: CHAIRMAN FERRIS NOT PARTICIPATING;
COMMISSIONER FOGARTY CONCURRING IN PART AND ISSUING A
STATEMENT IN WHICH COMMISSIONER QUELLO JOINS; COMMISSIONER
JONES DISSENTING IN PART AND ISSUING A STATEMENT.

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I. Introduction

1. On January 18, 1980, the Commission released its *Notice of Inquiry and Notice of Proposed Rulemaking (Notice)* in CC Docket No. 79-318, *Cellular Communications Systems*, 78 FCC 2d 984, 45 Fed. Reg. 2859 (1980). The *Notice* was framed broadly and solicited comments from all parties on central policy questions that needed to be resolved before cellular service could be instituted on a broad scale.¹ We have considered the views of 48 formal participants as well as thousands of informal commenters in the present proceeding. Before instituting this rulemaking, the Commission allowed for the construction of developmental systems to test cellular technology, and we have examined the results of these tests. The Commission has reviewed the proposed technical standards developed by the Electronic Industries Association (EIA). We find that we now have a sufficient record to amend our Rules to provide for the authorization of cellular communication systems on a commercial basis.

II. Background

2. The Commission is required by Section 303 of the Communications Act, as amended, 47 U.S.C. §303, to, among other things, "classify radio stations," prescribe the nature of the service to be rendered by each class of licensed stations, and to "assign bands of frequencies to the various classes of stations." In keeping with this statutory obligation, the Commission, prior to 1949, made available to wireline

¹ Cellular mobile systems are generally described as mobile radio systems with a high capacity to serve subscriber units due to the coordinated reuse of a group of radio channels. In such systems, each radio channel can be used many times in separate zones or cells within an area. Mobile units communicate with an array of cell control locations distributed throughout the system; these cell sites are linked to control and switching facilities and thereby interconnected with the telephone network. The frequencies used in the cells are carefully coordinated in such a way as to permit frequency reuse in geographically separated cells without mutual interference. A fully developed cellular system would have the ability to locate a subscriber unit, establish a connection through an appropriate cell site, and transfer ("hand off") that connection to other cell control locations as the subscriber unit moves through the grid of cell locations. The number of cell sites in a system is dependent on the degree of channel reuse, the amount of spectrum available, and the density of traffic on the system. See generally *Land Mobile Radio Service*, Docket No. 18262, *Second Report and Order*, 46 FCC 2d 752, 753 (1974).

carriers and independent entrepreneurs separate developmental assignments to experiment with mobile radio services and techniques. In 1949, the Commission in the *General Mobile Radio* allocation proceeding,² allocated frequencies by service classification, making provision for services for common carriers and for specialized classes of users, which we now classify in the Private Radio Services. In allocating spectrum for common carriers, the Commission emphasized its intention to develop a competitive environment:

[w]e have taken particular care to provide a family of frequencies within which the development of common carrier mobile radio systems by enterprises other than existing telephone companies may take place. These dispositions have been effected advisedly, and with the purpose, among others, of fostering the development of competing systems, techniques, and equipments.

13 FCC at 1218. Since 1949, nearly all common carrier mobile allocations have been separated into discrete bands for wireline common carriers (WCCs) and non-wireline common carriers (commonly known as radio common carriers or RCCs). See, e.g., *Adjustment of Band Edges (Guard Band Rulemaking)*, 12 FCC 2d 841, *recon. denied*, 14 FCC 2d 269 (1968), *aff'd sub nom. Radio Relay Corp. v. FCC*, 409 F. 2d 322 (2d Cir. 1969).

3. In 1968, pursuant to a report of the Land Mobile Frequency Relief Committee, we instituted Docket No. 18262 to set aside sufficient spectrum to meet the demand for land mobile communications for the foreseeable future.³ Recognizing that frequency congestion was present in the public and private bands, we proposed allocations to meet the needs of users in the several services. From 1968 until 1974 we sought and considered proposals regarding the advantageous utilization of the newly allocated spectrum.⁴

4. In our *Second Report and Order* in Docket No. 18262, 46 FCC 2d 752 (1974),⁵ we allocated 40 MHz for common carrier cellular communications systems and 30 MHz for use in the private services. 46 FCC 2d at 756. We also adopted a one system per market policy for cellular service because we believed that technical complexity and expense would make competing systems in a market unviable. To deter anticompetitive practices by wireline carriers operating cellular systems, these entities were required to establish separate subsidiaries to provide cellular service; to file all contracts between parent and subsidiary; to report all dealings between them; to refrain from manufacturing mobile equipment; and to offer interconnection to the public on the same basis as was made available to the cellular

² 13 FCC 1190 (1949).

³ *Notice of Inquiry and Notice of Proposed Rulemaking*, 14 FCC 2d 311 (1968).

⁴ *First Report and Order, Second Notice of Inquiry*, 19 RR 2d 1663 (1970), *recon. denied*, FCC 70-1001 (1970), *recon. granted in part*, 31 FCC 2d 50 (1971).

⁵ *Recon. granted in part*, 51 FCC 2d 945, *clarified*, 55 FCC 2d 771 (1975), *aff'd sub nom. NARUC v. FCC*, 525 F. 2d 630 (D.C. Cir. 1976), *cert. denied*, 425 U.S. 992 (1976).

subsidiary. In addition, we precluded systems from providing fleet-call dispatch services because of anticipated spectrum efficiency losses. We decided initially to license only developmental systems so as to enable optimal development of technical capability. Final policies and technical requirements were left for later resolution.

5. Our *Second Report and Order*, as initially released, restricted cellular licenses to wireline carriers. However, on reconsideration, we lifted that restriction, reasoning that, if only these carriers were technically and financially capable of amassing the resources necessary to develop and implement cellular service, it was unnecessary for us to mandate this eventuality by rule.⁶ We decided that, if non-wireline parties could demonstrate their ability to implement cellular service at the licensing phase, their applications should be considered along with those of the wireline carriers.

6. The National Association of Radiotelephone Systems (NARS) and other radio common carrier parties appealed the portion of the decision relating to cellular systems.⁷ The D.C. Circuit affirmed the Commission's action as a reasonable exercise of administrative discretion. *NARUC v. FCC*, 525 F. 2d 630 (D.C. Cir. 1976), *cert. denied*, 425 U.S. 992 (1976). One of the main arguments raised in that proceeding was whether the Commission's 40 MHz allocation plan, which at that time involved only one licensee per market, would become, in effect, a grant of monopoly power to AT&T. Examining that plan, the Court found a "significant plausibility" in assertions "that AT&T will operate most, if not all, of the cellular systems eventually put in operation". *Id.* at 636. Based on this assumption, the Court expected significant increases in AT&T's market power in the markets for common carrier two-way mobile communications and dispatch services. It also was concerned that the restrictions imposed upon wireline carriers designed to minimize anticompetitive conduct were likely to prove "largely cosmetic" because they would do little to curtail the projected power of AT&T. *Id.* at 637. Nevertheless, the Court affirmed our decision on the basis of the Commission's broad authority under Section 303(g) of the Communications Act, 47 U.S.C. §303(g), to experiment and encourage new uses of radio, and on the basis of the developmental nature of the service which created a lack of urgency in regard to the projected anticompetitive effects. In this regard, the Court observed that the anticipated anticompetitive effects were contingent upon a variety of factors surrounding the development and implementation of cellular service, and it noted that for the time being the Commission intended to authorize AT&T only one developmental

⁶ 51 FCC 2d 945 (1975).

⁷ In addition, the National Association of Regulatory Utility Commissioners (NARUC) appealed the decision on grounds relating to the Commission's policies on private Specialized Mobile Radio Systems. These policies, also adopted in Docket 18262, are unrelated to cellular systems.

system. This system would be located in Chicago and would utilize only 12.5 MHz of the 40 MHz allocation.

7. Pursuant to Docket No. 18262, the Commission eventually authorized two developmental systems.⁸ A license for a system covering the Chicago metropolitan area was granted to Illinois Bell Telephone Company (IBT).⁹ In addition, American Radio Telephone Service, Inc. (ARTS) was authorized to operate a cellular system in the Washington, D.C. - Baltimore area.¹⁰ At this time, we have received a number of developmental reports from both developmental systems. These reports have enabled the Commission to assess the technical capability and market viability of cellular service.

8. The present proceeding began with the release of our *Notice* in January 1980. A significant period of time had elapsed since we had last considered the policy issues involved in commercial implementation of cellular services. During this period, reports from the developmental systems mentioned above had provided additional information on the extent of the market for cellular service and on alternative technical schemes. Accordingly, we decided to ask for public comment on several issues—some were new issues, some others had been addressed earlier in Docket No. 18262. We did make clear, however, that we intended to maintain our commitment to the goal of implementing a nationwide compatible cellular communications service.

9. We sought comment in nine specific subject areas, although we also made clear that parties were free to address any matter which they deemed germane. The areas we identified were: market definition, competitive systems within a market, eligibility, equipment and service, resale of cellular services, federal-state jurisdiction, treatment of competing applications, technical standards, and spectrum allocation.

10. In response to our *Notice*, 48 formal participants filed 46 comments and 25 reply comments. These filings are summarized in Appendices A and B, and the parties will be referred to in the text by the designations indicated in the appendices. We also received several proposals offered as alternatives to AT&T's cellular plan in response to our request in footnote 17 of the *Notice*, 78 FCC 2d at 991 n. 17. In addition, thousands of individual consumers and businesses filed informal comments, generally supporting the rapid establishment of cellular service. The text of this *Report & Order* will address the issues

⁸ We have also received the following three developmental applications: Kidd's Communications, Inc., File No. 22345-CD-P-12-79, RCC of Virginia, Inc., File No. 21644-CD-P-30, Millicom Inc., File No. 21722-CD-P-14-80. The Common Carrier Bureau staff is currently processing these applications.

⁹ *Illinois Bell Telephone Co.*, 63 F.C.C. 2d 655 (1977), *aff'd sub nom. Rogers Radio Communications Services, Inc. v. FCC*, 593 F. 2d 1225 (2nd Cir. 1978). See also *Telocator Network of America v. Illinois Bell Telephone Co.*, 70 FCC 2d 713 (1979).

¹⁰ *American Radio Telephone Service, Inc.*, 66 FCC 2d 481 (1971).

raised but will not discuss all the comments in detail. All comments, whether or not specifically discussed in the text, have been evaluated in arriving at our conclusions.

III. Discussion

A. Spectrum Allocation and Competitive Systems Within a Market

11. In the 1974 *Second Report and Order* in Docket 18262, the Commission determined that cellular systems should be allocated 40 MHz of spectrum, with one cellular system to be licensed per market. This 40 MHz allocation was a reduction from an initial proposal of 75 MHz based on the Commission's conclusion that the anticipated demand for cellular services did not support an allocation of that magnitude. Because we recognized that there was considerable uncertainty in predicting the cellular market, however, we strategically placed spectrum reserves totalling 20 MHz in proximity to the cellular allocation. The Commission's one system per market approach was based on its conclusion at that time that, because a cellular system is technically complex, expensive and requires a large amount of spectrum to make it economically viable, competing systems within a 40 MHz allocation would not be feasible. 46 FCC 2d at 760.

12. In its 1980 *Notice*, the Commission undertook to rethink its one per market approach. Because regulatory policies and technology had changed dramatically in the intervening years, making possible the introduction of competition into markets formerly closed to competition, the Commission determined that it was appropriate to reconsider its previous decision to license only one cellular operator per area. The Commission recognized, as it had in Docket 18262, that cellular technology requires a relatively large allocation to enable a system to realize the cost savings that make cellular systems attractive. The Commission believed, however, that most of the economies could be realized at allocations significantly less than the full 40 MHz. Balancing the benefits of economies of scale against the benefits of competition, the Commission proposed that, within the existing 40 MHz allocation, up to two carriers be licensed in each service area. It was the Commission's view that such an approach, while not providing the most competitive market structure, would provide some competitive advantages, including the fostering of different technological approaches, diversity of service options and some degree of price competition which otherwise would not be present. 78 FCC 2d at 991. Acknowledging that there may be other possible approaches to accommodate potential entrants into this market, the Commission also sought comment on an "unlimited entry" alternative and a proposal by AT&T to have two systems of 30 MHz each, and it invited other parties to submit their proposals for consideration. *Id.* at 991-92. In addition, the Commission asked whether the overall market for cellular service might have changed since 1974 and whether, as a result of any such

changes, a larger allocation than contemplated in 1974 might be appropriate. In this regard, the Commission sought comment on whether it would be in the public interest to release the 20 MHz block of reserve spectrum. *Id.* at 1005-6.

13. The comments presented a broad range of options. They generally supported the licensing of two 20 MHz systems as the most appropriate means of achieving the Commission's goals of balancing the benefits of competition with the spectrum requirements of efficient cellular allocation for a mature cellular system. AT&T's proposal and comments also supported the Commission's suggestion that up to two carriers be licensed to provide cellular service in a cellular market area. Although agreeing that 20 MHz per system would be sufficient initially, AT&T proposed that each system ultimately have a 30 MHz frequency assignment and that the 20 MHz of reserve spectrum be allocated to cellular for that purpose. AT&T offered a number of analyses tending to show that a mature cellular system would be less expensive if it used the larger allocation of spectrum. It said a 30 MHz system would increase the cost of service to the public over that of a 40 MHz system by 17 percent, and a 20 MHz system would increase the costs over 40 MHz by 50 percent, or 28 percent over 30 MHz.¹¹ AT&T indicated that this occurs because the costs per subscriber decrease as channels are added, until the saturation point (the point when cell-splitting is needed) is reached. After that point, costs level off as cell sites are added. With a smaller allocation, cell-splitting must begin earlier, and the costs per subscriber level off at a higher point. In addition, with a smaller allocation, cell splitting involves additional costs and delays due to the need to obtain sites. AT&T estimated a total immediate demand in major markets for 1.5 million units.¹² AT&T believes that the point at which cell-splitting must occur in a 20 MHz system in cities like New York will be reached in the first year, with 8,500 subscribers. An additional 10 MHz would delay cell-splitting until there were 14,000 subscribers. Thus, two 30 MHz systems could accommodate 28,000 subscribers before cell-splitting. In New York, AT&T believes this could occur within two years.

14. A few parties urged unlimited entry or one system to a market. Motorola, for instance, proposed one 20 MHz system per market. The Department of Justice urged a flexible entry policy, suggesting that a 5 or 10 MHz system allocation might be appropriate in test markets. In

¹¹ These figures do not include the cost of leasing a mobile unit. When mobile units are included, the increase would be 10 percent, 30 percent and 18 percent, respectively. This reduction in relative cost reflects the assumption that mobile units for such systems would be equipped to use only the number of channels allocated to the individual system; the fewer the number of channels the less expensive the mobile unit. AT&T Comments at pp. 106-109.

¹² AT&T Comments at 104. This is based on data from the Chicago developmental system showing that 11 percent of businesses surveyed would subscribe. See Illinois Bell Cellular Developmental Report No. 10, p. A III - 2 (August 27, 1979).

making this proposal, however, Justice did not address the spectrum requirements of cellular design. Millicom contended that its system design would require a full 40 MHz that could be shared among multiple system operators. LIN Broadcasting Corporation also proposed a single 40 MHz system per market to be operated jointly by two carriers.

15. After considering each of these options, we have concluded that the licensing of two 20 MHz systems would best serve the public interest, convenience and necessity.¹³ In our view, this approach affords the public the benefits of some facilities-based competition in cellular service, while also taking into account the convincing record evidence before the Commission that, from a technical standpoint, cellular systems should be allocated no less than 20 MHz each. Each commenter who addressed the spectrum requirements of cellular design agreed that a cellular system based on either the AT&T or the Motorola design could not be efficiently operated in a mature cellular configuration in a major market with any allocation substantially less than 20 MHz.¹⁴ This minimum spectrum requirement is based on the fact that a mature cellular system in a high density market requires multiple frequencies at each cell site to achieve the efficiencies of trunking necessary to accommodate the demand for service. In addition, since the number of frequencies available at each site is limited, several sets of frequencies are required to provide adequate co-channel separation for frequency reuse. A 20 MHz allocation is therefore necessary to provide sufficient voice channels as well as the required dedicated group of set-up or control channels. Specifically, as set forth in Telocator's Comments, each mature cellular system requires either 309 or 273 channels to have the necessary 21 set-up channels and either 24 or 21 sets of 12 trunked voice channels, using the Motorola and AT&T configurations respectively. Dividing the existing 40 MHz allocation into two blocks of 333 channels would meet these channel demands; dividing the 40 MHz allocation into three blocks of 222 channels, for instance, would not. Given this substantial technical evidence that cellular systems as currently developed require approximately 20 MHz of spectrum to achieve minimum trunking efficiency gains, we have concluded that, within a 40 MHz total allocation, efforts to increase the number of competitive systems beyond two would not be warranted.

16. In reaching this conclusion, we are mindful of the Department of Justice's proposal of "flexible entry." In offering this proposal, Justice did not attempt to address the technical evidence submitted by

¹³ Given the appropriate showing, however, waivers of this policy will be considered. See footnote 41, below.

¹⁴ Broad Com's "SYNAPZ" design may ultimately be able to form a basis for a high capacity mobile system operating in less than 20 MHz, but the concepts involved have not been adequately developed or practically tested in a working environment.

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the other commenters. Rather, in apparent reliance on its observation that opinions have varied in the past regarding the appropriate allocation of spectrum per cellular system, Justice suggested that the optimal allocation per system and, thus, the optimal number of entrants which can be accommodated, remains uncertain. In Justice's view, it would be premature to determine at this time that each market should be restricted to two competitors. Justice maintains that a flexible licensing scheme based on market tests involving perhaps 5 or 10 MHz system allocations would therefore be appropriate. We disagree. Although an unlimited entry scheme such as that adopted for specialized carriers¹⁵ and domestic satellite carriers¹⁶ is attractive from a purely competitive point of view, our public interest standard comprises more than only the "encouragement of competition."¹⁷ Weighing all considerations, we find that the public interest would not be served by adopting Justice's proposal. In particular, the record evidence that cellular design limits the number of facilities-based competitors is compelling. While it is conceivable that with perfect knowledge we might choose to divide the 40 MHz allocation among three or four, rather than two, licensees, it is clear that technical considerations would not allow any substantial increase in the number of entrants which could build their own facilities. Because Justice has not provided us with any analysis to persuade us that the potential for a small increase in the number of facilities-based entrants is realistic, we find no justification for further delay in the commercial implementation of cellular service, even in a limited number of markets. We believe that the public interest would be better served by going forward with the licensing of two facilities-based competitors in each market with the potential for further competition in cellular services through resale. Accordingly, we reject Justice's flexible entry and market test proposal.

17. The Commission has similarly considered and rejected Millicom's proposal for required frequency sharing. Like the Justice proposal, Millicom's proposal to share a single 40 MHz allocation among several users theoretically holds out the promise of greater competitive entry than the two-per-market approach. Millicom's proposal, however, also fails to consider adequately the technical requirements of cellular design. Millicom's proposal troubles us in the first instance because, even if the voice channels in a cellular system could be shared with another system, each system would still require a separate set of control channels.¹⁸ With multiple entrants, this need

¹⁵ *Specialized Common Carrier Services*, 29 F.C.C. 2d 870 (1971), recon. denied, 31 F.C.C. 2d 1106 (1971), *aff'd sub nom. Washington Utilities and Transportation Commission v. F.C.C.*, 512 F. 2d 1142 (9th Cir.), cert. denied, 423 U.S. 836 (1975).

¹⁶ *Domestic Communications Satellite Facilities*, 35 F.C.C. 2d 844, recon. granted in part, 38 F.C.C. 2d 665 (1972).

¹⁷ *FCC v. RCA Communications, Inc.*, 346 US 86, 93 (1953).

¹⁸ The need for separate sets of controls arises because cellular systems, as developed to

would either reduce the number of available voice channels below that sufficient for minimum trunking efficiencies or, if the number of voice channels were to remain constant, would require the use of much more spectrum than the Commission is now prepared to allocate. More importantly, the proposal troubles us because Millicom has failed to explain adequately how its frequency sharing proposal, which is based on design concepts different from those explored to date, would actually work. There has been no explanation of how Millicom's moment-to-moment voice channel reassignment process would work if several systems with different cell patterns are to share the same channels and frequency reuse is still to be achieved. In short, we are unable to conclude that the Millicom scheme would permit the efficient use of spectrum without the need for further development. In our view, to delay the offering of commercial cellular service to the public in order to await such development is unwarranted.

18. The Commission also has rejected several proposals which advocated only one system per market. E.F. Johnson and ARTS, for instance, supported the licensing of one 40 MHz licensee per market to maximize spectrum efficiency. Lin proposed one 40 MHz system per market to be constructed and operated as a joint venture by two licensees unless the Commission should later decide that the market could support two systems. Such mandated joint ventures, Lin maintained, would give applicants the necessary incentives to encourage their entry into a relatively risky enterprise. Motorola proposed a single system of only 20 MHz, claiming that this allocation would be ample to meet the spectrum needs of cellular systems in the largest metropolitan areas through the end of this century.

19. As the Commission has stated previously, it is our view that even the introduction of a marginal amount of facilities-based competition into the cellular market will foster important public benefits of diversity of technology, service and price, which should not be sacrificed absent some compelling reason. The Commission is unpersuaded that these benefits would be outweighed by the benefits associated with the increased efficiency of a 40 MHz system over that of two 20 MHz systems or the alleged increased incentives to entry, as urged by LIN, particularly when there is no evidence that, absent a plan of mandated joint ventures, there would not be willing and qualified cellular applicants. The Commission has likewise rejected Motorola's proposal, which not only would eliminate the opportunity for facilities-based competition, but is unsupported by any convincing evidence that one 20 MHz system could reasonably meet the demands for cellular service. We previously gave serious consideration to the

date, must continuously transmit data on control channels to all cell sites, both for system overhead purposes and to determine when control of a mobile unit should be transferred between calls. Absent a common cell lay-out, which would eliminate the facility based competition the Commission envisioned in proposing more than one cellular system per market, these control channels cannot be shared.

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many arguments raised as to the minimum overall allocation of spectrum necessary for cellular systems. In Docket 18262, we concluded that 40 MHz was the amount of spectrum necessary to handle the predicted demand for cellular service in the near future. 46 FCC 2d at 756.¹⁹ That allocation was upheld by the Court of Appeals as being neither unreasonably large nor small.²⁰ Motorola has offered no sufficient reason to cause us to alter our decision on this matter.²¹

20. As a final matter, we have considered whether to allocate additional spectrum for cellular systems from the 20 MHz of reserve spectrum set aside for land mobile services in Docket 18262. AT&T was the major proponent of such an allocation in order to permit licensing of two mature systems of 30 MHz each. AT&T argued that a mature cellular system would be less expensive if it used a larger allocation of spectrum. It said that using a 20 MHz system would increase the costs of service to the public by 28 percent over a 30 MHz system.²² AT&T also maintained that 30 MHz would be the minimum system allocation ultimately required for viability, although 20 MHz would be sufficient initially.

21. As we observed in our *Second Report and Order* in Docket 18262, allocation of frequency spectrum in the 806-947 MHz band involves dealing with innumerable unknowns, ranging from new system technologies to innovative service offerings and future market projections for these services. Because of these inherent uncertainties, we emphasized that any allocation plan which we adopted should be flexible enough to accommodate new and often unforeseen technological and economic forces. It was our view that the allocation plan we adopted in that order provided that flexibility, while satisfying presently defined needs. 46 FCC 2d 752. Based on our understanding of cellular technology and the potential market for cellular systems, the Commission concluded that 40 MHz for cellular service would be sufficient and would provide for adequate growth and reasonable costs over the foreseeable future.

¹⁹ In Docket 18262 Motorola filed a Petition for Reconsideration directed to the amount of radio spectrum the Commission allocated for use by cellular systems. The petition, which was primarily directed to the methods the Commission should use in making the 40 MHz available for use in cellular systems, was rejected by the Commission, and the allocation of 40 MHz was affirmed. 51 FCC 2d at 948.

²⁰ *NARUC v. FCC*, 525 F. 2d at 636. In its opinion, the Court noted that Motorola had argued at length before the Commission that an allocation of 19 MHz would be sufficient. *Id.* at n. 21.

²¹ Motorola forecasts a demand for cellular service in New York of 104,940 subscribers, which Motorola believes could be accommodated on a single 20 MHz system. AT&T's forecasts, in contrast, place the demand for cellular service at 233,096 subscribers in the New York area, which would require at least an additional 20 MHz allocation. Moreover, in order to serve even the lower demand estimated by Motorola, Motorola assumes a reuse factor of 13X, an extremely high degree of channel reuse involving the use of a large number of very small cells.

²² AT&T Comments, p. 110.

22. After reviewing the comments here, we conclude that our goals for cellular service can be accomplished with a present allocation of 40 MHz of spectrum, without allocating additional spectrum from the reserve at this time. Even accepting AT&T's contention that two 20 MHz systems will result in more costly service to the public than two 30 MHz systems, we do not find the cost penalty substantial enough to commit more spectrum to cellular services. We also are not persuaded by AT&T's suggestion that two 20 MHz systems will not be sufficient for short-term cellular needs. The spectrum requirements of mature cellular systems are difficult to predict at this time, largely because no such mature systems exist. Present indications are that 20 MHz appears to be a reasonable amount of spectrum to support a single cellular system and that a 40 MHz total allocation can adequately meet public demand for cellular service over the immediate term. Because of the speculative nature of any attempt to predict the cellular market size, the Commission believes it should be cautious in making final allocations for cellular systems. Recognizing, in addition, that only a limited number of paired reserve frequencies usable for two-way communications remain in the 800 MHz band, that there are many competing demands for that spectrum for common carrier as well as private radio users, and that new advances in radio communications technology could possibly be precluded due to lack of available spectrum in which to develop, we will not allocate additional spectrum to cellular now. With a land mobile reserve, we will retain our flexibility to respond to a variety of future demands. If, in a future allocation proceeding, we determine, based on actual experience with operational commercial cellular systems, that additional spectrum is required for efficient operation in certain markets, we can make spectrum available from the reserve as appropriate.

23. *Mobile-Satellite System.* Another spectrum reserve related issue which several parties addressed involves the desirability of establishing a satellite communications system capable of providing service to mobile units nationwide. NASA and GE were the primary proponents of a mobile-satellite system. They said the Commission should consider not only urban but also rural mobile communication needs, and a satellite system could augment terrestrial cellular systems by providing a compatible service to areas not served by terrestrial systems. The Commission was urged to permit the development of a satellite-mobile system in the reserve bands. To that end, NASA and GE said that the reserve bands should be consolidated into two 10 MHz bands, rather than the present segmented allocation. To do this, a portion of the spectrum currently allocated to cellular would become reserve spectrum, while an equal portion of the current reserve band would be allocated to cellular.

24. We have decided not to consolidate the reserve bands as requested by NASA. First, we do not believe the need for satellite augmentation of terrestrial cellular systems has been established. The

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supplemental comments of NASA, which included estimates of the market potential to be served by satellites, have not persuaded us otherwise. In our view, the cellular design concepts we are adopting are sufficiently flexible to permit the establishment of terrestrial systems even in relatively thinly populated areas. Therefore, it is speculative whether satellite augmentation is either needed or cost-justified. Second, it is not certain that a satellite system, with the spot beam capability envisioned by NASA, would require an exclusive frequency allocation. This raises the possibility of sharing spectrum between terrestrial and space systems. Moreover, even accepting NASA's contention that two 10 MHz bands would be desirable for a satellite system, even NASA has not claimed that a satellite system could not be developed using the present segmented reserve band. Finally, a consolidation of the reserve band and a shifting of the cellular allocation at this date would raise international considerations requiring time-consuming renegotiation of pending international agreements.²³ This would seriously delay the implementation of cellular service.

25. On balance, therefore, we find that the uncertain benefit of adjusting the present allocation of the 800 MHz frequencies to promote satellite augmentation of terrestrial systems does not outweigh the cost of further delaying the implementation of commercial cellular service. If a satellite system is to be compatible with terrestrial systems and is intended to augment terrestrial systems, then our emphasis should be on providing an environment favorable to the growth of terrestrial systems. Compatible satellite systems can then be engineered to provide support and augmentation to the terrestrial systems.²⁴ By leaving the reserve bands intact, we are not precluding

²³ The Commission has received a letter dated March 30, 1981, from the Canadian Government expressing its position on general frequency coordination of the 800 MHz region and specifically regarding the possibilities of a mobile satellite allocation. The Canadian Government would like to leave open its options to implement a mobile satellite service somewhere between 806 and 890 MHz. Canada also indicated that due to its existing fixed operations, it was concerned about the Commission implementing a mobile service above 890 MHz. The rearrangement proposed by NASA and discussed above would place part of the cellular mobile allocation above 890 MHz and would therefore conflict with the Canadian position. Additionally, as Canada points out, the U.S. and Canada are almost ready to formally conclude an arrangement on the sharing of this frequency range near our common borders. We will continue our discussions with Canada on all these issues of common concern.

²⁴ This is consistent with our *Report and Order* in Docket 20271, in preparation for the 1979 World Administrative Radio Conference. Our policy was stated clearly in that document:

[A mobile-satellite] requirement is seen as a possible adjunct to, and not a replacement for, the services to be provided by the land mobile service in the 806-890 MHz band. Implementation within the United States, should such a system be proposed in the normal course of rulemaking, must maintain the integrity of our terrestrial land mobile services in this band and accommodate the expected

the possible future development and implementation of a mobile satellite system.

26. To summarize, we have concluded that a 40 MHz allocation for cellular systems will be available immediately for two competing systems per area, with 20 MHz to be available to each carrier. To accomplish this frequency use plan, the frequencies will be assigned in 20 MHz groups identified as Block A and Block B. A licensee will be authorized frequencies from only one Block within a given geographic area. Block A will consist of frequencies within the bands 825-835 MHz (mobile) and 870-880 MHz (base). Block B will consist of frequencies within the bands 835-845 MHz (mobile) and 880-890 MHz (base). We have also identified 21 frequencies per system for set-up and control purposes. These frequencies are adjacent to each other in Block A and Block B. With respect to mobile stations, all units must be capable of operating at least over the entire 40 MHz of spectrum (*i.e.*, 666 channels). This is necessary in order to insure full coverage in all markets and compatibility on a nationwide basis.

B. The Role of Wireline Carriers

27. In the preceding section we concluded that the overall public interest would be served best if there were two cellular systems competing in the same community. To make that possible, we decided to divide the 40 MHz of spectrum committed for cellular development into two blocks of 20 MHz each instead of following our original plan of licensing only one 40 MHz system per market.

28. Our next task is to decide whether we should place any restrictions on who is eligible to become a cellular licensee. This is a matter which we have wrestled with for some time. As mentioned earlier, we originally concluded that *only* wireline carriers should be licensed to operate cellular systems.²⁵ We then decided about a year later to drop that restriction and permit any qualified entity to apply.²⁶ Then, in the *Notice* initiating the proceeding now under consideration, we raised some concerns about whether wireline carriers should be permitted to operate cellular systems at all and asked parties for their comments. To focus the parties' attention on this issue, our *Notice* contained a discussion of the possible relevant markets/services with which two-way cellular operations might compete and the possible concerns posed by wireline participation in that competition.²⁷

29. In the discussion that follows, we set forth our reasons for

growth of short range terrestrial mobile communication systems.

World Administrative Radio Conference, 70 FCC 2d 1193, 1232 (1978).

²⁵ *Second Report and Order* (Docket 18262), 46 FCC 2d at 760.

²⁶ *Memorandum Opinion and Order* (Reconsideration of Docket 18262), 51 FCC 2d at 953.

²⁷ 78 FCC 2d at 989-90, 993-94. Our concern focused on the possibility of the wireline carriers extending their dominance in one market into another and the possibility

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