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MEMORANDUM FOR JOHN A. MINTZ  
ASSISTANT DIRECTOR-LEGAL COUNSEL  
FEDERAL BUREAU OF INVESTIGATION

Re: Applicability of Title III and the Fourth Amendment  
to Interceptions of Transmissions to Paging Devices

This memorandum responds to your inquiry of May 20, 1983 concerning the legal requirements that may apply to Federal Bureau of Investigation (FBI) interception of the radio signals transmitted to paging devices. You posed two basic questions with respect to three different types of paging systems currently on the market. First, are the messages sent to these paging devices the type of "wire or oral communications" that fall within the parameters of Title III of the Omnibus Crime Control and Safe Streets Act of 1968, Pub. L. No. 90-351, 18 U.S.C. § 2510 et seq. (1982 ed.)? Second, if the messages are not covered by Title III, does any justifiable expectation of privacy in the transmitted signals necessitate a warrant obtained under Rule 41, Fed. R. Crim. P., to authorize interception?

As explained in detail below, we conclude first that Title III does not impose any restrictions on the interception of signals transmitted to tone-only pagers. 1/ This is because the interception of "beeps" to tone-only pagers does not constitute the acquisition of the "contents" of any wire or oral communication as defined in Title III. See 18 U.S.C. § 2510(4), (8). We also conclude that there are no legitimate expectations of privacy with respect to the "beeps" transmitted

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1/ The various types of paging systems at issue are described in Section I, infra.

to tone-only pagers, so that interception of the "beeps" is not a "search" within the meaning of the Fourth Amendment. Accordingly, a Rule 41 warrant would not be required. Second, we conclude that Title III does not prohibit intercepts of transmissions to digital display pagers because no "aural acquisition" of a communication occurs. See 18 U.S.C.

§ 2510(4). However, we believe that there is a reasonable likelihood that the courts will determine that persons may have a legitimate expectation of privacy in communications to digital display pagers. We therefore conclude that government officials should obtain a Rule 41 warrant authorizing interception of such transmissions. Third, we believe that interception of messages transmitted to tone-and-voice pagers does constitute the aural acquisition of the contents of a wire communication as defined in Title III <sup>2/</sup> and is therefore governed by the requirements of that Title. Consequently, we need not reach any Fourth Amendment issues relative to interceptions of such transmissions to tone-and-voice pagers.

Finally, because some of these legal conclusions involve difficult judgments in an area of the law that is both subject to dramatic changes in technology and implicates fundamental concerns of privacy, we recommend that Congress be apprised of our conclusions. Once Congress is informed of the Executive Branch's interpretation of Title III, it will be in a position to evaluate whether a reexamination of Title III is desirable or whether additional legislation in this area is warranted.

#### I. BACKGROUND: THE THREE PAGING SYSTEMS

As we understand the facts, the FBI, in the course of its narcotics investigations, <sup>3/</sup> has often encountered traffickers and dealers who utilize paging devices to make contact with each other and with their customers. The FBI would like to intercept the radio signals transmitted to the pagers to aid its investigative efforts and, possibly, to use as evidence.

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<sup>2/</sup> This conclusion is not intended to affect in any manner the determination whether the interception of these same radio signals would constitute the acquisition of a wire communication as defined in the Foreign Intelligence Surveillance Act of 1978, 50 U.S.C. § 1801 et seq.

<sup>3/</sup> The FBI, pursuant to Attorney General Order No. 968-82, has authority, concurrent with the authority of the Drug Enforcement Administration, to investigate violations of the criminal drug laws. See 47 Fed. Reg. 4989 (1982).

The Federal Communications Commission (FCC) licenses common carriers to transmit messages to pagers. Common carriers are either radio common carriers (RCCs) or wireline common carriers (WCCs), the latter being the nation's telephone companies. Approximately 750 RCCs provide over 85% of all paging services available for hire. See Posa, "Radio Pagers Expand Horizons," High Technology at 45 (March 1983) [hereinafter Radio Pagers]. The FCC assigns each paging company carrier its own frequency, and each company rents a telephone line which it connects by computer to a radio transmitter on its assigned frequency. Subscribers buy or rent pagers, which are essentially specialized radios that accept signals only from the towers of the various paging company carriers. No subscriber has his own, exclusive radio frequency. Rather, the paging company assigns an identification code to each of the thousands of users sharing the same radio frequency. The subscriber distributes the paging company's phone number and his own identification code number to persons who may need to reach him. Anyone trying to contact the subscriber first telephones the paging company's number, then dials or "touch-tones" the subscriber's identification number into the phone. The paging company's computer captures the identification code number. This individual code, when transmitted by radio wave, alerts the pager of the subscriber for whom the message is intended. Depending on the particular model involved, the pager may either simply "beep" or remain activated to receive a forthcoming voice message or digital information. Thus, all paging systems share two characteristics: (1) the initial connection by the person desiring to contact the subscriber carrying the pager device is by telephone, and (2) subsequent to a brief interruption for electronic processing, the message travels by radio wave from the paging company's computer to the subscriber.

As explained to us by the Drug Enforcement Administration (DEA), because only one message can be sent over a given frequency at any time, while each frequency is shared by thousands of users, the paging company's computer captures incoming calls in its memory and holds them for transmission until the assigned radio frequency is clear. During peak use, the delay between initial receipt of the telephone message by the computer and transmission of the message over radio wave may be minutes. During off hours, capturing and transmitting messages may entail an interruption of only microseconds. The DEA further notes that some pagers have devices that permit a subscriber to monitor all messages coming over his frequency. Pagers without this feature generally can be modified by persons with some electronics training to receive all transmissions broadcast over the shared channel. Further,

all paging companies broadcast over the public air waves, usually FM, so that even non-subscribers can monitor messages by means of widely available, general coverage radios, such as a "Bearcat Scanner." See Memorandum to Honorable Theodore B. Olson, Assistant Attorney General, Office of Legal Counsel, from Bob A. Ricks, Chief Counsel, Drug Enforcement Administration, re: Monitoring Radio Pagers at 2 (August 1, 1983). 4/ By monitoring the sound of an individual code 5/ over a radio, while watching a subscriber respond to his pager, it is possible to match a code to a subscriber.

The FBI has encountered three types of paging systems that are involved in the present analysis.

#### A. Tone-Only Pagers

Tone-only pagers are the simplest pager model. A caller wishing to contact a subscriber carrying a pager first telephones the paging company, then dials or touch-tones the subscriber's individual code number and hangs up. The computer at the paging company captures the code and broadcasts the code as an audio signal as soon as the radio frequency is clear. The subscriber's pager receives the broadcast code and "beeps." Because the tone-only pager is incapable of receiving any further message, the subscriber must have an established system for responding to any signals transmitted to him. Generally, the subscriber knows the one or few sources who have his individual code number and would be contacting him, and we assume that the usual response is to telephone these parties. The radio signal to the pager can be intercepted by a similar pager operating on the same frequency. The interception of these audio signals simply indicates that the subscriber is being contacted through the paging service.

#### B. Tone-And-Voice Pagers

Tone-and-voice pagers enable callers to transmit short voice messages to subscribers' pagers. A caller first telephones

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4/ There is some disagreement over the extent to which devices capable of monitoring messages to digital display pagers are available to the general public. See n.9, infra.

5/ The individual codes assigned to subscribers are seven digit numerical codes, like telephone numbers, that are transmitted as tones (analog frequency modulation) or digital information (digital frequency-shift keying) over the airwaves.

the paging company and then dials or touch-tones the subscriber's individual code. The caller is notified by a "beep" that he has a short time (9-15 seconds) to communicate a message into the phone. The computer captures both the individual's code and the message. As soon as the radio frequency is clear, the computer broadcasts the message to the subscriber's pager, which self-activates and "beeps." The tone-and-voice pager (receiver) then remains "on the air" for a few seconds after code recognition to receive the audio message from the caller. After the message is sent, the computer erases it from its memory bank.

The broadcast of audio signals to tone-and-voice pagers 6/ can be intercepted either by similar pagers operating on the same frequency or by common, commercially available radio scanners. As the DEA notes, many tone-and-voice pagers have a device allowing subscribers to listen to all messages sent over their shared frequency. 7/ The interception of the broadcast provides the verbal message of the caller.

### C. Digital Display Pagers

The third type of paging device permits callers to telephone the paging service, touch-tone or dial the subscriber's individual code into the phone, and then touch-tone or dial a numerical message. After the computer captures the subscriber's code number and the caller's message, the carrier transmits this as digital information--a long string of binary ones and zeros transmitted over slightly higher or lower frequencies than the carrier frequency--rather than as

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6/ Technically, a carrier modulates its assigned carrier frequency with audio signals. Such broadcasts are termed "analog" transmissions.

7/ Because messages transmitted to tone-and-voice pagers consume substantial airtime, as few as 1,600 tone-and-voice pagers can use up a single channel. See Radio Pagers at 46.

audio tones over the airwaves. 8/ The subscriber's pager is alerted to self-activate by receipt of the individual code. The pager (receiver) then captures the digital message in its memory bank and "beeps." The subscriber can display and read the message immediately upon receipt or can wait to read the message later. Digital display pagers can only display numbers, which may either be phone numbers or coded numerical messages. More recently developed pagers, alphanumeric display pagers, display both numbers and letters.

In contrast to tone-and-voice pagers, digital display pagers, as presently manufactured, do not contain features for monitoring all messages transmitted over the shared frequency. However, according to the DEA, digital pagers can be modified to monitor messages sent over the shared channel. As with the other paging systems, nonsubscribers can also intercept the messages with conventional radio scanners. 9/ Once intercepted, decoders convert the bits of binary information into a printed display message.

FBI investigations of large-scale drug distribution rings have discovered that pagers enable the various participants to engage in two-way conversations about drug transactions. For, example, person A will dial into the paging service, touch-tone person B's individual's code, and then touch-tone a seven digit coded request to place a drug order. Person B, after receiving the request will respond to person A, who also carries a pager, by the same method. Person B's response might indicate the size of the drug shipment, the

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8/ Accordingly, these broadcasts are in digital, rather than analog, form. The carriers transmit digital information to digital display pagers by using a format called frequency-shift keying (FSK). "With FSK, digital information is used to shift the output of the radio transmitter to frequencies slightly higher and lower than the carrier frequency; on the receiving end, the pager converts these shifts back into digital pulses." Radio Pagers at 45. Because transmission of digital information "compacts" messages and conserves airtime, up to 75,000 users of display pagers can share a single radio channel.

9/ The FBI has stated that it is unaware of digital scanners that are comparable to analog scanners. In any event, the use and availability of digital scanners at this early stage of technological development appears to be much less prevalent than that of analog scanners.

exact type of drug, and its price. The FBI is able, at times, to identify the individual codes of the pagers used to conduct these transactions. The present request focuses generally on whether a Title III or Rule 41 warrant is a prerequisite for monitoring these communications to narcotics traffickers or their customers who carry pagers.

II. ANALYSIS  
A. Title III Coverage

The first inquiry is whether Title III of the Omnibus Crime Control and Safe Streets Act of 1968, 18 U.S.C. § 2510 et seq., governs FBI interception of the radio signals transmitted to the above-described pagers. If so, then the procedures set forth in Title III define the circumstances and conditions under which such communications may be intercepted by law enforcement officials with the approval of a federal court. See 18 U.S.C. §§ 2516, 2518. Only if transmissions to pagers are not covered by Title III need we reach the subsequent question, whether FBI interception constitutes a search within the meaning of the Fourth Amendment of a communication in which the caller or recipient has a "justifiable," "reasonable," or "legitimate" expectation of privacy. See Smith v. Maryland, 442 U.S. 735, 739-40 (1979).

1. Whether the Acquisition of Messages to Pagers Constitutes an "Interception" for Purposes of Title III

Title III places a blanket prohibition on any person who "willfully intercepts, endeavors to intercept, or procures any other person to intercept or endeavor to intercept, any wire or oral communication; . . ." 18 U.S.C. § 2511(1)(a), except for those interceptions specifically provided for in that Title, most notably interceptions by law enforcement officers authorized by court order in connection with investigations of the serious crimes listed in 18 U.S.C. § 2516. See United States v. Giordano, 416 U.S. 505, 514 (1974). 10/

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10/ Congress believed that its constitutional power to prohibit interception of oral communications, which do not necessarily involve the interstate communications network, was less clear than its power to legislate with respect to wire communications. Therefore, in addition to the broad prohibition contained in subsection (a), 18 U.S.C. § 2511(b) provides an alternative,

(Footnote continued on next page)

Although your first inquiry is whether communications to pagers are "wire" or "oral" communications as defined in Title III, we believe the question whether an "interception" occurs is a threshold issue that enables us to resolve some of your questions prior to reaching the "wire" or "oral" communication issue.

As the Supreme Court recognized in United States v. New York Telephone Co., 434 U.S. 159, 166 (1977), Title III is concerned only with interceptions, see 18 U.S.C. § 2511(a), and judicial orders "authorizing or approving the interception," 18 U.S.C. § 2518(1), of wire or oral communications. Congress defined "intercept" to mean "the aural acquisition of the contents of any wire or oral communication through the use of any electronic, mechanical, or other device." 18 U.S.C. § 2510(4). "Contents" is further defined as "any information concerning the identity of the parties to such communication or the existence, substance, purport or meaning of that

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(Footnote continued)

more explicit, statutory basis for prohibiting the interception of oral communications. See S. Rep. No. 1097, 90th Cong., 2d Sess. 92 (1968). In pertinent part, 18 U.S.C. § 2511(b) penalizes any person who, failing to conform to Title III procedures:

willfully uses, endeavors to use, or procures any other person to use or endeavor to use any electronic, mechanical, or other device to intercept any oral communication when --

(i) such device is affixed to, or otherwise transmits a signal through, a wire, cable, or other like connection used in wire communications; or

(ii) such device transmits communications by radio, or interferes with the transmission of such communication; . . .

Congress intended § 2511(b) to create an "essentially comprehensive ban on the interception of oral communications . . . applicable to the overwhelming majority of cases," thus making it "unnecessary to rely on the broader prohibition of subparagraph (a)." S. Rep. No. 1097, 90th Cong., 2d Sess. 93 (1968).

communication." 18 U.S.C. § 2510(8). We believe that the acquisition of mere signals (frequency modulations) to tone-only pagers is not covered by Title III because there is no interception of the "contents" of any communication. See United States v. New York Telephone Co., 434 U.S. at 167 (pen registers); United States v. Seidlitz, 589 F.2d 152, 156-57 (4th Cir. 1978), cert. denied, 441 U.S. 922 (1979) (telephone traces).

Interception of the audio beeps transmitted to activate a tone-only pager discloses only that an attempt to establish contact has been made. Analogous to pen registers, 11/ "[n]either the purport of any communication between the caller and the recipient of the call, their identities, nor whether the call was even completed . . .," United States v. New York Telephone Co., 434 U.S. at 167, is disclosed by the interception of alerting "beeps" to tone-only pagers. The legislative history of Title III further confirms that Congress did not intend to subject the interception of simple "beeps" to pagers to its requirements. As the Senate Report explains:

Paragraph 4 [of § 2510] defines 'intercept' to include the aural acquisition of the contents of any wire or oral communication by any electronic, mechanical, or other device. Other forms of surveillance are not within the proposed legislation . . . . The proposed legislation is not designed to prevent the tracing of phone calls. The use of a 'pen register,' for example, would be permissible. But see United States v. Dote, 371 F.2d 176 (7th Cir. 1966). The proposed legislation is intended to protect the privacy of the communication itself and not the means of communication.

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11/ As explained by the Supreme Court: "A pen register is a mechanical device that records the numbers dialed on a telephone by monitoring the electrical impulses caused when the dial [or touch tone] on the telephone is released. It does not overhear oral communications and does not indicate whether calls are actually completed." United States v. New York Telephone Co., 434 U.S. 159, 161 n.1 (1977). With pagers there may well be a greater presumption that a transmission is received, but interception of the "beeps" does not establish that a particular contact was in fact made.

S. Rep. No. 1097, 90th Cong., 2d Sess. 90 (1968). Much like the use of pen registers and telephone traces, acquisition of nothing more than "beeps" to tone-only pagers involves no threat to the privacy of any communication; it indicates only the means of communication employed by two persons.<sup>12/</sup>

A more difficult issue is whether interception of the digital information transmitted to digital display pagers is an "intercept" involving the "aural acquisition" of the "contents" of a communication. See 18 U.S.C. § 2510(4). To the extent that a caller sends, and the paging company transmits, only a telephone number to a digital display pager, conceivably there may be no interception of the "contents" of a communication as defined in Title III. That is, interceptions of such telephone number messages to digital display pagers may simply indicate the number of the person who originated the call. Such information is logically indistinguishable from that recorded by pen registers, which disclose the telephone numbers that the caller has attempted to contact. Both types of interceptions, in this limited sense, reveal solely the means of establishing communication rather than the substance of any communication. They identify nothing more than what is voluntarily disclosed to the telephone company: the sort of information used in compiling telephone toll or message unit billing records. See Michigan Bell Tel. Co. v. United States, 565 F.2d 385, 388 n.5 (6th Cir. 1977) (no analytical distinction between pen registers, which record the numbers of outgoing calls from a monitored telephone, and telephone traces, which trace the origins of incoming calls to the monitored telephone). Cf. United States v. Miller, 425 U.S. 435, 442-43 (1976).

However, the interception of certain telephone numbers and coded messages to digital display pagers can involve the acquisition of the contents or substance of a communication. The intercepted telephone number may not only indicate where the call came from but also may convey a message: "please

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<sup>12/</sup> We are informed that the extensive documentation of telephone calls that the telephone companies maintain or are capable of maintaining makes it likely that the government currently can obtain more information about the identities of callers, the length of calls, or whether calls were completed from pen registers than from intercepts of signals to tone-only pagers.

call this number." 13/ In addition, presently available digital pagers can transmit short coded messages, e.g., the current price of narcotics, locations for "meets," and pagers will soon be capable of delivering much more information. "New digital units can scroll out a long message by means of a numeric or alphanumeric display . . . . Such capabilities transform pagers into pocket data terminals, able to supply doctors with medical histories, service people with maintenance data [and] investors with up-to-the-minute stock quotes . . . ." Radio Pagers at 44. Because the contents of a communication, however brief, are being intercepted, because Congress intended to protect comprehensively the privacy of communications 14/, and because developing technology will increase the amount of information that can be transmitted and potentially intercepted, we conclude that an interception of this sort of substantive message to digital display pagers would constitute an acquisition of the contents of a communication within the meaning of Title III. Government officials, however, cannot know in advance whether they would be intercepting only the caller's telephone number or a more substantive message. Therefore, the mere possibility that no "contents" will be intercepted provides an inadequate basis for concluding that intercepts of transmissions to digital display pagers fall outside the scope of Title III.

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13/ Although establishing clear lines of distinction may be difficult, we believe that if the caller is transmitting the same telephone number as that from which the call originated, interception theoretically would be permissible on the grounds that no "contents" were acquired, because nothing more is disclosed than what the telephone company could obtain through a telephone trace. Numbers other than the "originating number" are obviously intended to convey additional information.

14/ As indicated in the legislative history:

Paragraph (8) defines "contents" in reference to wire and oral communication to include all aspects of the communication itself. No aspect, including the identity of the parties, the substance of the communication between them, or the fact of the communication itself, is excluded. The privacy of the communication to be protected is intended to be comprehensive.

S. Rep. No. 1097, 90th Cong., 2d Sess. 91 (1968).

Nevertheless, an intercept of such messages would not be covered by Title III if an "aural acquisition" is not involved. There is neither a statutory definition of the word "aural" nor anything in the legislative history to illuminate what Congress intended to accomplish by including that word. <sup>15/</sup> In the absence of any aid from the legislative history, courts have relied on canons of statutory construction that require one to attribute a commonly accepted meaning to legislatively undefined words. See United States v. Seidlitz, 589 F.2d at 157. Because the term "aural" in Title III logically signifies that sound must be involved, <sup>16/</sup> the Supreme Court has concluded that pen registers "do not accomplish the aural acquisition of anything." United States v. New York Telephone Co., 434 U.S. at 167. Rather, "[t]hey decode outgoing telephone numbers by responding to changes in electrical voltage . . . and present the information in a form to be interpreted by sight rather than by hearing." Id. Consequently, the absence of any "aural" acquisition provides an alternative rationale for concluding that the use of pen registers is not subject to the requirements of Title III. See also Opinion Letter from D. Lowell Jensen, Assistant Attorney General, Criminal Division, to Honorable John S. Martin, U.S. Attorney, S.D.N.Y., Re: Interception of Telex Communications (April 9, 1982) (interception of telex not aural acquisition).

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<sup>15/</sup> As explained in the legislative history, "Title III is essentially a combination of S. 675, the Federal Wire Interception Act, introduced by Senator McClellan. . . , and S. 2050, the Electronic Surveillance Control Act of 1967, introduced by Senator Hruska . . . ." S. Rep. No. 1097, 90th Cong., 2d Sess. 66 (1968). S. 675 defined intercept to mean the "acquisition of the contents," etc., while S. 2050 defined intercept to mean the "aural acquisition" without further explanation of the modifying term. See Controlling Crime Through More Effective Law Enforcement, Hearings [on Multiple Bills] before the Subcomm. on Criminal Laws and Procedures of the Senate Comm. on the Judiciary, 90th Cong., 1st Sess. 78, 1002 (1967). See also 114 Cong. Rec. 11755 (1968) (Title III is product of S. 675, drafted before Berger v. New York, 388 U.S. 41 (1967), and the post-Berger S. 2050) (remarks of Sen. Hruska).

<sup>16/</sup> "Aural acquisition" means to come into possession through the sense of hearing. See Webster's Third New International Dictionary (1967 ed.); cf. United States v. Turk, 526 F.2d 654, 658 n.2 (5th Cir.) (for purposes of an "aural" acquisition under § 2510(4), a tape recorder can be the agent of the ear), cert. denied, 429 U.S. 823 (1976).

Similar to interceptions by pen registers, digital display pagers intercept information in a form that is interpreted by sight rather than by hearing. <sup>17/</sup> Because digital display pagers, unlike pen registers, often intercept the contents of a communication, we are somewhat reluctant to accord dispositive significance to the legislatively-undefined term "aural" in the present instance. Nevertheless, we are unable to identify a principled distinction between pen registers, which record, in the form of dashes equivalent to the telephone number dialed, the electrical impulses carried by telephone wires, and digital display pagers, which convert changes in electromagnetic frequencies into a numerical display. Neither the one nor the other technically constitute "aural acquisitions."

Moreover, Congress appears to have been aware of wire-tapping statutes that prohibit more than interceptions involving "aural acquisitions." See Right of Privacy Act of 1967, Hearings on S. 928 before the Subcomm. on Administrative Practice and Procedure of the Senate Comm. on the Judiciary, 90th Cong., 1st Sess. 12 (1967) (Nevada statute prohibiting interception of wire communications involving the transmission of writing, signs, signals, pictures, and sounds of any kind) (bill considered concurrently with S. 675, S. 2050 and others). Yet Congress chose not to pattern Title III after such models. Because we must attempt to give some meaning to each word adopted by Congress, see Reiter v. Sonotone Corp., 442 U.S. 330, 339 (1979) (court obliged, if possible, to give effect to every word Congress used), we believe that Congress must have intended to prohibit aural as opposed to visual acquisitions of information. Thus, similar to the interception of a telex communication or of an exchange of information with a computer, no aural acquisition occurs in intercepts of transmissions to digital display pagers. See United States v. Seidlitz, 589 F.2d at 157.

Although we are disinclined to attribute a great deal of narrowing significance to the word "aural," a term Congress inserted in the statute without explanation, see n.15 supra, we believe that this is not a case where undue emphasis on the formal meaning of "aural" enables the government to circumvent the fundamental purpose of Title III. Our analysis would not

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<sup>17/</sup> Moreover, since Title III prohibits intercepts through the use of any device, see 18 U.S.C. § 2510(4), one must focus on whether the device is intercepting sound rather than whether a person later hears or sees the intercepted information.

permit a person who aurally acquires an oral or wire communication to convert that communication immediately by sophisticated technological means into written or unintelligible form and thereby avoid the proscriptions of Title III. Cf. United States v. Turk, 526 F.2d 654, 658 n.2 (5th Cir.) (for purposes of an "aural" acquisition under § 2510(4), a tape recorder can be the "agent" of the ear), cert. denied, 429 U.S. 823 (1976). Nor do we suggest that Congress intended to limit "aural" acquisitions to sounds that are immediately intelligible to the human ear and brain. The aural interception of an unintelligible, scrambled portion of a telephone communication would be covered by Title III even though the message would not be comprehensible at the moment of interception. In sum, if there is an apprehension of sound, the courts seem likely to hold that any subsequent use such as decoding or transformation, e.g., into video form, of that intercepted communication is necessarily irrelevant for purposes of Title III. Cf. Hoffa v. United States, 385 U.S. 293, 300-03 (1966) (if Fourth Amendment permits receipt of a conversation, the recipient's use of the conversation, e.g., decoding, is not a matter of constitutional concern). In the case of digital display pagers, no interception of sound occurs and courts would likely conclude that there is no "aural acquisition" within the meaning of Title III. 18/

On the other hand, there is no question that the interception of the audio signals transmitted to tone-and-voice pagers constitutes an aural acquisition for purposes of Title III. Moreover, because short, audible messages are intercepted, an acquisition of the contents of a communication occurs. The plain language of Title III therefore creates an anomalous situation: communications of essentially similar scope and nature, transmitted to devices that share certain fundamental characteristics, are statutorily protected if they are transmitted in analog, but not in digital, form. Given this anomaly, and because our interpretation of what Congress

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18/ We have not been asked and do not reach the question whether interception of a message to a digital display pager during the telephone wire portion of the communication would be covered by Title III. In such an intercept, outgoing numbers would be decoded, similar to the operation of pen registers, in response to changes in electrical voltage, and the information would be presented in a form to be interpreted by sight rather than hearing. This tends to support our conclusion that no "aural acquisition" occurs in the interception of radio signals to digital display pagers.

intended by "aural acquisition" may be debatable, we recommend that Congress be made aware of our reading of its presumed intent so that it may respond with appropriate legislation to fill the "gap" in existing law.

Because we conclude that the interception of audio messages to tone-and-voice pagers involves the aural acquisition of the contents of a communication, and would therefore constitute an "interception," we must proceed to determine whether either a "wire" or "oral" communication as defined in Title III is in issue.

2. Whether Transmissions to Pagers Constitute Wire or Oral Communications for Purposes of Title III

Title III defines "wire communication" to mean

any communication made in whole or in part through the use of facilities for the transmission of communications by the aid of wire, cable, or other like connection between the point of origin and the point of reception furnished or operated by any person engaged as a common carrier in providing or operating such facilities for the transmission of interstate or foreign communications;

.. ..

18 U.S.C. § 2510(1). On the other hand, "oral communication"

means any oral communication uttered by a person exhibiting an expectation that such communication is not subject to interception under circumstances justifying such expectation; . . .

18 U.S.C. § 2510(2). The distinction between the two definitions is significant. While Congress intended the coverage of wire communications to be comprehensive, see S. Rep. No. 1097, 90th Cong., 2d Sess. 89 (1968), Congress extended Title III protection to oral communications only in situations in which persons have a reasonable expectation of noninterception

or privacy. 19/ Courts have subsequently acknowledged the self-evident reason for the more restrictive definition of the oral communications protected by Title III: when persons talk by telephone, they can reasonably assume privacy; that assumption may be invalid for certain nonwire communications. See United States v. Hall, 488 F.2d 193, 196 (9th Cir. 1973) (no privacy expectation in calls between car radio-telephones when parties knew they could be overheard); see also Holman v. Central Arkansas Broadcasting Co., 610 F.2d 542 (8th Cir. 1979) (reporter's recording of defendant's boisterous complaints from cell block did not violate any expectation of privacy); United States v. Pui Kan Lam, 483 F.2d 1202 (2d Cir. 1973) (no expectation of privacy in conversation intercepted in house of strangers to which appellants had tried to gain entry by false representations), cert. denied, 415 U.S. 984 (1974).

The transmissions to all three types of paging devices involve an initial telephone connection between the caller and the paging company, a momentary interruption for electronic processing, and a subsequent transmission by radio broadcast. Because "wire communication" includes any communication "made in whole or in part through the use of facilities for the transmission of communications by the aid of wire, cable, or other like connection between the point of origin and the point of reception furnished or operated by any person engaged as a common carrier . . ." 18 U.S.C. § 2510(1) (emphasis added), we have concluded that messages to the tone-and-voice pagers, which all travel in part by telephone wire, are "wire communications" as defined in Title III. Cf. United States v. Hall, 488 F.2d 193 (9th Cir. 1973). However, the DEA contends that such messages are not wire communications because (1) Congress intended the "in whole or in part" language to protect telephone conversations conducted partially

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19/ The Senate Report expressly notes that the definition of oral communication reflects the scope of privacy that persons may reasonably expect to be protected from governmental intrusion under the Fourth Amendment, as recognized by the Supreme Court in Katz v. United States. See 389 U.S. 347, 351, 353 (1967) (because the Fourth Amendment protects people, not places, "[t]he Government's activities in electronically listening to and recording the petitioner's words violated the privacy upon which he justifiably relied while using the telephone booth and thus constituted a 'search and seizure' within the meaning of the Fourth Amendment"); S. Rep. No. 1097, 90th Cong., 2d Sess. 89-90 (1968).

by wire and partially by microwave or satellite; (2) Title III protection of wire communications should be limited to those in which communicants have an objectively reasonable expectation of privacy; and (3) there are really two separate communications involved, and the interception occurs during the radio transmission which is an "oral" and not a "wire" communication. Alternatively, the DEA argues that even if these communications constitute "wire communications," the consent exemption set forth in 18 U.S.C. § 2511(2)(c)(d), would permit interception of these communications. We address these arguments offered in support of the DEA position seriatim.

a. What Congress Intended by "in whole or in part"

The plain meaning of "in whole or in part" suggests that Congress intended to accomplish the broadest possible statutory protection of wire communications. The scant legislative history that illuminates why Congress included "in whole or in part" in the statute similarly indicates that Congress intended to achieve as broad a definition and coverage of wire communications as possible. As the Senate Report explains:

Paragraph (1) defines "wire communications" to include all communications carried by a common carrier, in whole or in part; through our Nation's communications network. The coverage is intended to be comprehensive.

S. Rep. No. 1097, 90th Cong., 2d Sess. 89 (1968). We are not aware of any indication in the legislative history which suggests that Congress inserted "in whole or in part" solely to ensure that telephone calls travelling in part by wire and in part by microwave <sup>20/</sup> or satellite came within the definition of "wire communication." Absent any indication that Congress desired this facially comprehensive statutory language to apply only to specific situations, we decline to construe "in

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<sup>20/</sup> Microwaves are electromagnetic waves having a frequency range from 1,000 megahertz (MHz) to 300,000 MHz. "Like light waves, microwaves travel essentially in straight lines. They are used in radar, in communications links spanning moderate distances, and in other applications, such as microwave ovens. The equipment used to generate, process, and transmit microwaves is in many respects different from that used with ordinary radio waves." The New Columbia Encyclopedia (Harris & Levey eds.) 1770 (1975).

whole or in part" as limited to part wire, part microwave telephone communications. See Consumer Product Safety Comm'n v. GTE Sylvania, Inc., 447 U.S. 102, 108 (1980) (statutory language regarded as conclusive absent clearly expressed legislative intention to the contrary); T.V.A. v. Hill, 437 U.S. 153, 185 (1978) (not for court to speculate whether Congress would have altered comprehensive scope of legislation had specific events of this case been anticipated)).

Moreover, the statutory language and legislative history of the Foreign Intelligence Surveillance Act of 1978, Pub. L. No. 95-511, 92 Stat. 1783, 50 U.S.C. (& Supp. V) § 1801 et seq. (FISA), indicate, by contrast, that when Congress wants to limit or specify the definition and scope of "wire communication," it knows how to do so. FISA defines wire communication to mean "any communication while it is being carried by a wire, cable or other like connection furnished or operated by any person engaged as a common carrier . . . ." 50 U.S.C. § 1801(1) (emphasis added). The legislative history explicitly distinguishes this statutory definition from the definition of "wire communication" under Title III, 18 U.S.C. § 2510(1). See H. Conf. Rep. No. 1720, 95th Cong., 2d Sess. 22-23 (1978); H.R. Rep. No. 1283, Pt. I, 95th Cong., 2d Sess. 52 (1978); S. Rep. No. 701, 95th Cong., 2d Sess. 35-36 (1978). Congress noted that most telephone and telegraphic communications are transmitted at least in part by microwave radio transmissions, and clarified that, unlike Title III, interception of the radio portion of such communications would be covered by the statutory provisions concerning radio, rather than wire, communications. See, e.g., H.R. Rep. No. 1283, Pt. I, 95th Cong., 2d Sess. 52 (1978); S. Rep. No. 701, 95th Cong., 2d Sess. 35 (1978). Congress presumably was simultaneously aware that various types of communications may travel in part by wire and in part by radiowave and that the "in whole or in part" qualification in the definition of "wire communication" in Title III had specific consequences with respect to interceptions of such communications. Having addressed the implications of the terms "in whole or in part" when Congress considered Title III in conjunction with the passage of FISA, Congress could have amended the definition of wire communication in Title III had it wished to do so. Indeed, Congress, in enacting FISA, made several other conforming amendments to Title III. See Pub. L. 95-511, § 201, 92 Stat. 1796-98 (amending §§ 2511, 2516, 2519 of Title 18). Because a particular construction or judicial interpretation of "wire communication" in Title III was fully brought to Congress's attention and Congress did not seek to alter that interpretation, although it altered the statute in other respects, we may presume that the legislative intent, as originally expressed,

has been correctly understood. See United States v. Rutherford, 442 U.S. 544, 554 n.10 (1979). Assuming, for the moment, that the entire communication from the caller to the paging device in the possession of the subscriber/recipient is a single communication, we conclude that it is a wire communication as defined in Title III. 21/

We note that this conclusion is essentially in accord with the only federal court case that addresses the "in whole or in part" issue in a similar context. In United States v. Hall, 488 F.2d 193 (9th Cir. 1973), the court reasoned that, absent any indication of how Congress viewed communications between radio-telephones and land-line telephones for purposes of Title III, the plain language of the statute compelled the conclusion that any communication involving in part a land-line telephone was a wire communication. See 488 F.2d at 197-98. But cf. Dorsey v. State, 402 So.2d 1178 (Fla. 1981) (definition of "wire communication" applies only to that part of the communication transmitted by wire). 22/ Further, Congress

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21/ Interception of the radio portion of such a communication would not, however, constitute electronic surveillance of a wire communication for purposes of ETTA. See 50 U.S.C. § 1801(1).

22/ In Dorsey, the court rejected both the Hall decision and what we perceive to be the plain meaning of "in whole or in part," on the grounds that "[i]n Florida, it is a well-settled principle that statutes must be construed so as to avoid absurd results." 402 So.2d at 1183. The court maintained that "just as it would be absurd to include within the definition of "wire communication" a message broadcast over a public address system for everyone to hear, even though the communication is aided by certain wires, it would be equally absurd and asinine to include within that definition television or radio signals broadcast with no expectation of privacy and openly available for anyone with the proper equipment to hear." 402 So.2d at 1183.

To hold that communications to pagers are wire communications does not necessarily entail that the so-called "absurd" hypotheticals posed by the court would also be protected wire communications. Moreover, even if the court's approach has certain elements of common sense, we must regard the statutory language, which clearly states "in whole or in part," as conclusive. See United States v. Clark, 454 U.S. 555, 560 (1982) (if statutory language is clear, it is ordinarily conclusive).

presumably was aware of the Hall decision, because the legislative history of FISA cites the case several times, albeit primarily for the proposition that there is no justifiable expectation of privacy in communications solely between radio telephones. See, e.g., H.R. Rep. No. 1283, Pt. I, 95th Cong., 2d Sess. 52 (1978); S. Rep. No. 701, 95th Cong., 2d Sess. 34, 36 (1978). Although legislative inaction, without more, is an inconclusive guide, see Aaron v. SEC, 446 U.S. 680, 694 n.11 (1980), it is not without significance that Congress simultaneously defined wire communication in FISA to take account of the interpretation of "in whole or in part" in the Hall decision, made certain amendments to Title III, but did not alter Title III to overrule Hall. Cumulatively, these actions suggest that Congress intended to adhere to the Hall court's construction of "in whole or in part" for Title III. See Haig v. Agee, 453 U.S. 280, 300-01 (1982).

b. Interpreting the Definition of "Wire Communication" to Include an Objectively Reasonable Expectation of Privacy

The DEA argues that "[t]he only logical way to interpret Title III is to read an objective privacy expectation into the definition of "wire communication." The DEA contends that such a construction is necessary to prevent absurd results, since a literal construction would allegedly prohibit intercepts where persons knowingly make telephone calls to radio talk shows that broadcast their voice to thousands of listeners. As noted above, Congress distinguished wire and oral communications for purposes of Title III and limited protection of oral communications to those in which the caller had a justifiable expectation of privacy. See 18 U.S.C. § 2510(2). Consequently, an oral communication is protected only if the caller, by his conduct, exhibits an actual (subjective) expectation of privacy which, viewed objectively, is also "justifiable" under the circumstances. Cf. Smith v. Maryland, 442 U.S. 735, 740 (1979) (similar determination of legitimate privacy expectations for purposes of Fourth Amendment). In contrast, the statutory protection afforded wire communications is broad and unqualified; the statutory language in no way suggests that a normative inquiry concerning "objective privacy expectations" is in order. See S. Rep. No. 1097, 90th Cong., 2d Sess. 91 (1968) ("[§ 2511(a)] establishes a blanket prohibition against the interception of any wire communication"). The only exceptions to the comprehensive protection of wire communications are set forth explicitly in the statute. For example, Congress, in 18 U.S.C. § 2511(2)(a)(i), expressly insured that employees of common carriers could lawfully intercept wire communications in the

normal discharge of their employment duties, as necessary to protect the property and rights of the carrier. See Campiti v. Walonis, 611 F.2d 387, 393 (1st Cir. 1979); S. Rep. No. 1097, 90th Cong., 2d Sess. 93 (1968). Congress also guaranteed that persons who are parties to the communication or persons to whom a party has given prior consent may intercept a communication. See 18 U.S.C. § 2511(2)(c), (d). We believe that, with respect to wire communications, Congress deliberately chose to rely on these narrow statutory exceptions, rather than to rely on an implicit "objective privacy expectation," in limiting the scope of Title III. See also Briggs v. American Air Filter Co., Inc., 630 F.2d 414, 417 (5th Cir. 1980) (absent specific statutory exemption, interception of wire communications is forbidden regardless of the speaker's expectation of privacy).

Moreover, failing to imply an "objective privacy expectation" into the statute does not entail absurd results. We seriously doubt that the allegedly "absurd" examples of protected wire communications cited by the DEA -- a person who knowingly makes a telephone call to a radio talk show that broadcasts his voice to thousands of listeners or a telephone caller who knows that his voice will be amplified over a speaker-phone to thousands of listeners at a convention -- are indeed subject to the protection of Title III. On the one hand, if a person knowingly engages in a conversation with thousands of listeners, the persons in that intended audience are parties to the communication and may "intercept" it without violating Title III. See 18 U.S.C. § 2511(2)(c), (d); S. Rep. No. 1097, 90th Cong., 2d Sess. 94 (1968); cf. United States v. Pasha, 332 F.2d 193, 198 (7th Cir.), cert. denied, 379 U.S. 839 (1964) (interception for purposes of Communications Act of 1934 connotes surreptitious overhearing or en route interference, whereas person who receives communications at its logical end point is a party to the communication) (relied on in legislative history to Title III). Alternatively, a person who calls a radio show and whose voice is broadcast to thousands has consented, expressly or implicitly, to the possible interception of his communication. Such callers have voluntarily relinquished any Fourth Amendment or statutory protections that might have applied to their conversation. See Schneckloth v. Bustamonte, 412 U.S. 218 (1973). Thus, either the "consent monitoring" or "party" exception to Title III, see 18 U.S.C. § 2511(2)(c), (d), would authorize interception of these hypothetical conversations, which the DEA correctly presumes Congress cannot have intended to protect. See also S. Rep. No. 1097, 90th Cong., 2d Sess. 93-94 (1968) (Title III reflects existing law with respect to consent, which may be express or implied).

c. Are One or Two Communications Involved?

The DEA's next contention is that there are actually two, distinct communications involved: one over the phone to the paging company's computer and another from the computer to the radio transmitter and, finally, to the pager. This is because the computer "captures" the telephone call before sending the message over the broadcast frequency and although the process may seem instantaneous, there is nevertheless an interruption that produces two calls.

We believe that, with respect to the paging devices involved here, the communication protected by Title III from unauthorized interception is the communication between persons -- the caller and the recipient. The caller is attempting to communicate with the recipient carrying the paging device; he is not carrying on a dialogue with the paging service. Cf. United States v. Seidlitz, 589 F.2d 152, 156-57 (4th Cir. 1978), cert. denied, 441 U.S. 922 (1979) (person exchanging messages with computer). 23/ The paging service computer does not independently generate any information that is then communicated to the person carrying the paging device. Nor would the person with the pager receive any message from the computer if the caller had not initiated the communication. The computer is simply a transmitter; it has no capacity to alter, add to, or omit anything from the contents of the communication between the caller and the subscriber-recipient.

In addition, we do not believe that any interruption between the telephone segment and the radio transmission, during which the computer captures, translates, and on occasion stores the message prior to transmission in a form receivable by the paging device, transforms, as an analytical matter, one communication into two separate communications. Nothing in Title III indicates that Congress regarded mechanical or electronic delays, which may interrupt but do not alter the contents of a communication, as significant events that transform one communication into two. Delays may occur in

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23/ In Seidlitz, the defendant sent instructions and requests over the telephone circuits from his home terminal to a central computer. The computer responded to the defendant's requests with new information; it did not simply pass on the same information. The court found that a communication existed for purposes of Title III, see 589 F.2d at 156, but held, for various reasons, that an "interception" did not occur. See 589 F.2d at 156-58.

the transmission of telephone conversations as well. If the delay occurred at the point the telephone message was transferred from a wire to a microwave transmission, 24/ surely any subsequent interception would be deemed an intercept of a single telephone call, rather than of a "second" radio call. 25/ Because the communication initiated by the caller is not, for the purposes involved here, severable from that received by the carrier of the pager, we conclude that communications to paging devices made in part by the aid of telephone cables operated by a common carrier would constitute "wire communications" as defined by Title III.

d. Implied Consent to Interception

Finally, the DEA argues that even if messages to pagers constitute a single wire communication, Title III is inapplicable because the caller and the subscriber/recipient have impliedly consented to interception of the communication. The DEA premises this consent on the participants' recognition that other people may have access to their communications. However, assuming that a statutorily protected wire communication is involved, 26/ consent cannot be derived from a party's knowledge that a communication might be, or will even probably

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24/ The transmission of telephone messages over long distances is often accomplished by means of radio and microwave transmissions. See New Columbia Encyclopedia, supra at 2706; see also n.20 supra.

25/ In contrast to mechanical delays or processing interruptions, were a person to telephone a secretary, who then communicated the message to the intended receiver in the next room, two conversations would have occurred. The intervention of the "human factor," although significant, is not dispositive, for an operator might cause an interruption in transmission without thereby creating two communications. Cf. United States v. Savage, 564 F.2d 728 (5th Cir. 1977) (inadvertent overhearing by switchboard operator in connecting calls does not violate Title III). Rather, the secretary's freedom to alter the second message is critical.

26/ Of course, if the communication is neither a wire communication nor an oral communication in which the parties have a reasonable expectation of privacy, then consent is irrelevant. See United States v. Rose, 669 F.2d 23, 26 (1st Cir.) (notwithstanding parties efforts to conceal their oral communication, they could not object to its interception, absent any reasonable expectation of privacy), cert. denied, 103 S.Ct. 63 (1982).

be, intercepted. See Campiti v. Walonis, 611 F.2d at 393. To the contrary, courts have explicitly held that "knowledge of the capability of monitoring alone cannot be considered implied consent." Watkins v. L.M. Berry & Co., 704 F.2d 577, 581 (11th Cir. 1983) (citing Campiti v. Walonis, 611 F.2d 387, 394 (1st Cir. 1979); Crooker v. United States Department of Justice, 497 F. Supp. 500, 503 (D. Conn. 1980)).

Consent involves a voluntary relinquishment of a person's rights, see Schneckloth v. Bustamonte, 412 U.S. at 248, and most persons using paging devices have not voluntarily consented to the interception of their communications. Indeed, the frequent use of coded messages clearly indicates that the parties have no desire to have their communications intercepted. Moreover, since the wire communications are statutorily protected by Title III, it is irrelevant whether the parties have a legitimate expectation of privacy within the meaning of the Fourth Amendment. We therefore conclude, as have the courts, that the consent exception authorizing interception, see 18 U.S.C. § 2511(2)(c), (d), is not met simply because it is technologically possible, or even easy, to intercept the communication. It is in fact difficult for us to conceive of an instance in which persons will have impliedly consented to the interception of their otherwise statutorily protected wire communications, even though those persons may well be aware that it is technologically feasible to monitor their conversations.

In sum, interceptions of communications to tone-and-voice pagers constitute the aural acquisition of the contents of a wire communication within the meaning of Title III. Accordingly, FBI interception of such communications is permissible only if the Attorney General or the appropriate Assistant Attorney General has authorized application for an order from a federal judge of competent jurisdiction, see 18 U.S.C. § 2516, Att'y Gen. Order No. 931-81 (Jan. 19, 1981) (designating certain Assistant Attorneys General to authorize applications for Title III), and the judge has issued an order approving interception. See 18 U.S.C. § 2518.

B. Applicability of Fourth Amendment to  
Transmissions Not Covered by Title III

Although we have concluded that any interceptions of mere "beeps" to tone-only pagers and of the transmissions to digital display pagers are not subject to the requirements of Title III, a warrant obtained under Rule 41 Fed. R. Crim. P. may nevertheless be necessary if these interceptions constitute a "search" within the meaning of the Fourth Amendment. The Fourth Amendment applies whenever "the person invoking its

protection can claim a 'justifiable,' a 'reasonable,' or a 'legitimate expectation of privacy' that has been invaded by government action." Smith v. Maryland, 442 U.S. 735, 740 (1979) (citing cases). As noted above, see p. 20 supra, this privacy expectation includes both a subjective and objective element: whether the individual has actually exhibited an expectation of privacy and whether the individual's expectation is one which society is prepared to recognize as reasonable. See Smith v. Maryland, 442 U.S. at 740; Katz v. United States, 389 U.S. at 361 (Harlan, J., concurring).

We believe that the Supreme Court holding in Smith v. Maryland, that the installation and use of pen registers does not constitute a "search" for purposes of the Fourth Amendment, disposes of the Fourth Amendment question with respect to the "beeps" transmitted to tone-only pagers. See 442 U.S. at 745-46. Regardless whether any individual exhibits a subjective expectation that the "beeps" transmitted by radio broadcast would remain private, this expectation does not seem to be "one that society is prepared to recognize as 'reasonable.'" Smith v. Maryland, 442 U.S. at 743, quoting Katz v. United States, 389 U.S. at 361. To begin with, like telephone users, persons who rent or buy pagers necessarily, and voluntarily, convey their identification codes to the paging services. We also assume that these code numbers are permanently maintained by the paging service for monthly billing and other business purposes. As the Court consistently has held, "a person has no legitimate expectation of privacy in information he voluntarily turns over to third parties." Smith v. Maryland, 442 U.S. at 743-44; see, e.g., United States v. Miller, 425 U.S. 435, 442-44 (1979) (no legitimate expectation of privacy in financial information conveyed to banks and exposed to their employees). Because the "beeps" sent to a tone-only pager simply indicate an attempt to contact a particular pager code number, this information is no more protected than the numbers recorded by a pen register, which indicate an attempt to contact a particular telephone number. Given our conclusion, based on Smith v. Maryland, that no one can claim a legitimate expectation of privacy in the numerical information dialed to contact tone-only pagers, see 442 U.S. at 743, we need not reach the question whether the relative ease of intercepting communications to such pagers also might remove any reasonable expectation of privacy that persons might harbor with respect to these broadcasts. Cf. United States v. Rose, 669 F.2d 23, 26 (1st Cir.), cert. denied, 103 S. Ct. 63 (1982) (ham radio); United States v. Hall, 488 F.2d at 198-99 (mobile radio-telephones). Therefore, because there is no justifiable expectation of privacy in the type of information broadcast to the tone-only pagers, the Fourth Amendment does not prohibit warrantless interception of such communications.

The determination whether a Rule 41 warrant is needed to intercept transmissions to digital display pagers is considerably more difficult. Critical to the Supreme Court's holding in Smith v. Maryland is the fact that pen registers do not acquire the contents of a communication. See 442 U.S. at 741, 743. Because no contents are acquired, the government's use of pen registers involves no intrusion on any legitimate privacy expectations protected by the Fourth Amendment. See Smith v. Maryland, 442 U.S. at 741, 745. This is qualitatively different from the government's monitoring of a telephone conversation by an electronic listening device attached to the outside of a public phone booth, a practice which clearly violates a justifiable expectation of privacy. See Katz v. United States, 389 U.S. at 353.

Significantly, interceptions of messages transmitted to digital display pagers do acquire the contents of a communication. See pp. 10-11 *supra*. This practice is therefore more intrusive than the use of pen registers. Moreover, callers would reasonably assume that the contents of their digital messages are erased, rather than permanently stored, by the computer. In addition, many callers and users of the paging devices presumably indicate by their conduct -- calling from unexposed locations or using code -- a subjective expectation of preserving the privacy of their communications. But cf. United States v. Rose, 669 F.2d at 26 (extent of precautions taken by callers using ham radios does not denote subjective expectation of privacy but mere hope that relatively exposed communication would not be intercepted). In sum, because callers are able to transmit the contents of a communication to a particular digital display pager, because they are not voluntarily conveying these contents, as they would their telephone number, to the paging service, see, e.g., Michigan Bell Tel. Co. v. United States, 565 F.2d at 386, 388, because the paging service has no legitimate business purpose in preserving these contents, and because callers most likely exhibit subjective expectations of privacy in their communications, we must ask whether any alleged expectation of privacy is one that society is prepared to recognize as reasonable.

Courts have found that persons who communicate over ham radio frequencies or by means of mobile radio telephones do not have a reasonable expectation of privacy in those communications. See United States v. Rose, 669 F.2d at 26; United States v. Hall, 488 F.2d at 198. But cf. United States v. Sugden, 226 F.2d 281, 296 (9th Cir. 1955) (Communications Act provides limited privacy expectation in radio communications protected by that statute), *aff'd*, 351 U.S. 916 (1956). However, digital display pagers provide somewhat greater

expectations of privacy than ham radio broadcasts. Each pager reacts to an individual code, so that messages are targeted to specific paging devices rather than at large, as is the case with ham radios. In contrast to tone-only and tone-and-voice pagers, digital display pagers are not currently capable of monitoring messages transmitted to all other digital pagers that share the same frequency. Moreover, we are informed by the FBI that digital scanners, comparable to the Bearcat scanners that intercept analog (voice) transmissions, are not generally available.

All of these factors bear on our Fourth Amendment analysis, because legitimate expectations of privacy depend on the extent to which persons voluntarily reveal information to the public and the relative ease with which persons can be surveilled. See United States v. Knotts, 103 S.Ct. 1081 (1983) (surveillance, by signal from installed beeper, of car on public streets and highways, did not violate Fourth Amendment). Constitutional analysis does not, however, turn on current or future levels of technological sophistication and capacities for interception. See, e.g., United States v. Knotts, 103 S.Ct. at 1086; Smith v. Maryland, 442 U.S. at 744-45. We believe that there is a distinction between expectations of privacy with respect to communications between ham radios and communications to digital display pagers. Digital pagers are designed to enable exclusive contact with a particular individual. The public apparently regards these pagers somewhat like portable telephones: they supply doctors with medical histories and investors with last-minute stock quotations. See Radio Pagers at 44. And, absent tampering, digital pagers preserve the privacy of communications to a greater degree than do ham radios. Insofar as no justifiable privacy expectations exist with respect to ham radio communications; it is concededly difficult to assess whether courts would hold that a reasonable expectation of privacy in communications to digital pagers exists. Nevertheless, because it is quite possible that legitimate privacy expectations may attach to such communications, we conclude that a Rule 41 warrant should be obtained prior to intercepting transmissions to digital display pagers.

#### CONCLUSION

We conclude that neither Title III nor the Fourth Amendment protect the transmission of beeps to tone-only pagers. Consequently, the warrantless interception of such transmissions over radiowaves is permissible. Although Title III does not protect transmissions to digital display pagers, there may well be a legitimate expectation to privacy in such communications that merits Fourth Amendment protection. We therefore

conclude that Rule 41 warrants should be obtained to authorize intercepts of communications to digital display pagers. Finally, Title III does prohibit interception of the contents of communications transmitted to tone-and-voice pagers. Accordingly, interception of such communications must be authorized by an appropriate Assistant Attorney General and approved by judicial order. See 18 U.S.C. §§ 2516, 2518.

As we stated earlier in this memorandum, because some of the conclusions which we have expressed involve difficult legal judgments on sensitive and important issues that are further complicated by rapidly changing technology, we recommend that Congress be apprised of the legal position which has been adopted by the Executive Branch as set out in this memorandum. An informed Congress would then be free to clarify the statute or make further changes to accommodate developing technological capabilities in the surveillance area to the extent necessary to reflect congressional desires.

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