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November 16, 1994

EX PARTE

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW, Room 222
Washington, DC 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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RE: PR Docket 93-61, Automatic Vehicle Monitoring Systems

Dear Mr. Caton:

On Wednesday, November 16, 1994, Peter Knight and I, on behalf of AirTouch Teletrac, met with Commissioner Chong and Jill Lockett. We discussed the information in the attached material. Please associate this material with the above-referenced proceeding.

Two copies of this notice were submitted to the Secretary of the FCC in accordance with Section 1.1206(a)(1) of the Commission's Rules.

Please stamp and return the provided copy to confirm your receipt. Please contact me at 202-293-4960 should you have any questions or require additional information concerning this matter.

Sincerely,

Kathleen Q. Abernathy

Attachment

cc: Commissioner Chong
Jill Lockett

No. of Copies rec'd 0+1
List A B C D E

Review of the Issues Regarding FCC Rulemaking on LMS

PR Docket 93-61: Automatic Vehicle Monitoring (AVM) Systems



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Teletrac operates in Six Major Metropolitan Areas

Teletrac provides important services at affordable prices to individuals, businesses, and government agencies in each of its operational cities.

- . Los Angeles December 1990***
- . Chicago May 1991***
- . Detroit July 1991***
- . Dallas October 1991***
- . Miami October 1991***
- . Houston May 1992***

Services offered by Teletrac

The variety of services possible with Teletrac technology is diverse.

Consumer

Stolen Vehicle Recovery

Roadside Assistance

Mobile Yellow Pages

Peace of Mind Location

Remote Door Lock/Unlock

Commercial

Fleet Management

Panic Button Alert

Tractor/Trailer Security

Status/Messaging

Stolen Vehicle Recovery

Law Enforcement Applications

Teletrac Helps Public Safety and Law Enforcement:

- **Ambulance response times are faster with the aid of Teletrac devices.**
- **Panic buttons installed in taxis and buses provide protection for drivers and passengers in emergencies.**
- **Parolees and/or probationers are tracked to monitor movement and potential repeat offenses.**
- **Breaking up organized auto-theft rings and "chop-shops". Over a third of all recoveries lead to an arrest.**
- **Suspected narcotics smugglers are monitored with Teletrac.**
- **Truck mounted devices have aided in the recovery of millions of dollars of stolen cargo.**
- **Kidnapping payoff scenarios can be conducted in safer surroundings using Teletrac device co-located with ransom.**

Teletrac Customers

Teletrac has over 900 commercial & government customers:

Cook/DuPage County Transp.

LA County Dept. of Education

Dallas School Transp.

Chicago Yellow Cab

Budget Rent-a Car

US Postal Service

Southern California Edison

TCI Cable

Pacific Bell

Federal Bureau of Investigation

Drug Enforcement Agency

Consolidated Freight

J.B. Hunt Trucking

Dept. of Customs

Alcohol, Tobacco & Firearms

Avis Rent-a-Car

ParaTrans Ambulance

US Secret Service

Internal Revenue Service

Houston Gas Utility (ENTEX)

Michigan Consolidated Gas

Chicago Police Department

Why Customers Need Teletrac

“Since 1990, Cargo C.A.T.S. has recovered more than \$85 million in stolen equipment and freight. A great deal of this success can be directly attributed to the Teletrac system”

LA County Sheriff; Cargo Criminal Apprehension Team

“On two separate occasions [our] drivers were attacked. Both times they pushed the Teletrac button which sent an emergency message to a security company. Because the company was able to give the police the exact location of the vehicle, police responded in minutes.”

PepsiCo Food Services

“Without making public the specific ways in which the FBI is utilizing these services, our surveillance capabilities have been significantly enhanced by the use of these commercial [radio-location] services.”

Federal Bureau of Investigation

“The Teletrac system proved extremely useful, during the recent civil unrest in Los Angeles, by allowing us to locate and direct all affected buses to safety, when the unrest entered our service area.”

Santa Monica Municipal Bus Lines

History of LMS - FCC Part 90.239

- **The FCC adopted Interim Rules for Automatic Vehicle Monitoring (AVM) in 1974 to promote the development of this new spread spectrum technology for vehicle location and monitoring.**
 - Pulse-ranging AVM systems were authorized in two 8 MHz sub-bands: 904 - 912 MHz and 918 - 926 MHz.
 - Secondary to ISM and Government Users.
 - Primary to Part 15 and Amateurs.
- **Teletrac was granted first multilateration AVM license in 1985 and introduced the first commercial US AVM service in 1990.**
- **Teletrac filed a Petition for Rulemaking in May 1992 for final AVM rules after having proven the commercial viability of AVM technology.**
- **The FCC Issued Notice of Proposed Rulemaking in April 1993 (PR 93-61):**
 - Continue wideband multilateration licensing in two 8 MHz AVM sub-bands.
 - Non-vehicle applications allowed: Location and Monitoring Services (LMS).
 - Continued sharing of sub-bands with primary and secondary users.

History of Part 15.

- **FCC Rules for non-licensed use of low power RF devices established in 1938.**
- **In 1985, Part 15 Rules were adopted for limited range direct sequence spread spectrum systems operating at 1 Watt peak output power.**
- **In 1989, Part 15 Rules for the 902 -928 MHz band were restructured:**
 - 15.245 for field disturbance sensors (less than 100 mWatts)
 - 15.247 for spread spectrum devices (less than 1 Watt)
 - 15.249 for other low power communications transmitters (less than 1 mWatt)
- **234.5 MHz of spectrum available for spread spectrum Part 15 systems:**

- 902 -928 MHz	26.0 MHz
- 2.400 - 2.4835 GHz	83.5 MHz
- 5.725 - 5.850 GHz	125.0 MHz
- **The spread spectrum Rules were modified in 1990 to reduce power when using high antenna gains and to allow frequency hopping systems.**
- **Part 15 may not cause harmful interference to, and must accept interference from, licensed systems, ISM equipment and other Part 15 devices.**
- **Part 15 devices must cease operating if harmful interference occurs.**

Part 15 and LMS Coexistence.

- **THE REALITY: Part 15 is in the 902 - 928 MHz band to stay.**
- **Teletrac has designed its system to tolerate substantial interference from Part 15 and other users of the band.**
- **The limited instances when interference is harmful require the interference to be resolved as quickly as possible to prevent unacceptable service degradation for customers.**
- **The LMS service provider has few options for dealing with harmful interference when it does occur:**
 - **moving an LMS receive site is very costly and takes time**
 - **an LMS system is licensed for a specific frequency.**
- **Migrating individual Part 15 devices to a new frequency in isolated cases is the easiest, cheapest and least disruptive solution.**
 - **Virtually all Part 15 devices are designed to be frequency agile.**
- **Unlicensed equipment developers have choices for spectrum:**
 - **14 MHz within 902 -928 MHz outside the LMS sub-bands**
 - **208.5 MHz in other ISM bands (2.4 GHz and 5.8 GHz)**
 - **20 MHz in unlicensed PCS band (1.9 GHz)**

Teletrac Coexists well with Part 15.

- **Teletrac has been commercially operating in spectrum shared with Part 15 devices for up to 4 years in its 6 commercially operating cities.**
- **Cases of harmful interference to Teletrac from Part 15 devices have been isolated (about 1 in 15,000). No case has required FCC involvement.**
- **The vast majority of interference has been caused by two types of Part 15 business/industrial devices (long range video links, anti-shoplifting systems). Simple frequency migration has solved each case.**
- **Primary interference from Teletrac to Part 15 is from narrowband forward channels (250 kHz representing less than 1% of the band). There have been no reports of Part 15 operations being degraded by these signals.**
- **3000 Metricom Utilinet units operate in Teletrac's Los Angeles area (some located at Teletrac receiver sites) without degrading either service.**
- **LMS companies jointly proposed a tolerance level to Part 15 interference: 10 to 20 dB above noise floor depending on Part 15 duty cycle.**
- **LMS companies jointly proposed good faith negotiation and arbitration to resolve interference before seeking FCC intervention.**

Incidents of Harmful Part 15 Interference since 1991.

The incidence of interference has been limited to about 1 in 15,000 Part 15 devices operating in the 902 - 928 MHz band. Final LMS rules and on-going technical exchange will give Part 15 developers and LMS providers greater understanding of how to prevent interference in the future.

Equipment Type / Use	Part 15 Units in Teletrac Coverage **	Total Cases of Interference	Active Cases of Interference	Cases of Interference Involving FCC
Spread Spectrum	13,100	1	0	0
Wireless Stereo/Video *	36,900	17	2	0
Cordless Telephones	184,500	1	0	0
Wireless Security Alarms - Residential	17,712	0	0	0
Wireless Security Alarms - Commercial	10,148	0	0	0
Field Disturbance Sensors	3,690	30	0	0
Wireless Bar-code Readers and Portable Computers	123,000	0	0	0
Meter Reading Transponders	369,000	0	0	0
Total	758,050	49	2	0
Percent	100%	0.006%	0.0003%	0.0%

* These cases of interference have been from long range outdoor video links.

** Based on Part 15 manufacturer estimates scaled in proportion to US pops covered by Teletrac systems.

Transition Time and Build Out Rules.

- **Plans for further buildout of granted LMS licenses have been stymied due to uncertainty in the final band plan and buildout rules.**
- **A transition period is necessary to allow licensees to build current valid licenses using already authorized frequencies.**
- **Teletrac has proposed using its existing forward channel in any systems it builds (25 kHz @ 925.015 MHz).**
- **Additional channels would conform to the final band plan.**
- **A three year transition period is requested assuming construction rules include a customer loading requirement of 100 paying units.**

Teletrac should be allowed to continue using its existing forward channel in all systems.

- Existing licenses authorize use of this frequency.
- The NPRM suggested the continued use of this frequency.
- The existing channel occupies only 25 kHz at 925.015 MHz.
- There has been no compelling evidence suggesting forward channel frequencies should change.
- Roaming would be possible with existing customer equipment.
- Subscriber equipment costs would be reduced given economies of scale.
- Existing customer investment in subscriber equipment would not be stranded.
- Teletrac is willing to place future channels in another part of the band in order to accommodate Part 15 requests.

Minimum Transition Period

- **Barring a loading requirement for construction a reduced transition period would be possible.**
- **Teletrac estimates the need for marketing and sales activities to meet loading requirements would add 18 months to a buildout.**
- **Without a loading requirement 18 months would be the minimum transition period that allows adequate time for buildout.**
 - Assumes the construction and operation requirements of 90.155(c).
 - Assumes using existing forward channel (25 kHz @ 925.015 MHz).
 - Historically, construction of existing Teletrac systems has taken 15 months.
- **A requirement to use the new frequency plan during the transition period would add 6 months to the minimum buildout time.**
- **In any case, operating systems built with existing forward channel should be allowed to continue using that channel in the future.**

Final rules are needed for continued LMS growth.

Continued development of needed services is impaired without Final Rules. Investors and customers are placed at risk if the existing environment continues.

- **There has been significant innovation in spread spectrum technology since the Interim Rules to prove the viability of LMS.**
- **An estimated \$500 million has been invested in LMS.**
- **Over 35,000 LMS subscriber units are in service today with paying consumer, business, and government customers.**
- **Continued growth of LMS depends on continued investment in technology development and infrastructure deployment.**
- **Expansion of service offerings and coverage are critical elements in attracting and maintaining a growing customer base.**
- **This expansion cannot progress at reasonable risk without final rules.**

Summary

- **LMS is a vital spread spectrum-based service that uniquely solves problems for consumers, businesses and government. Its continued growth will provide great public benefit.**
- **Part 15 concerns should be taken in context with their allocations outside the 902-928 MHz ISM band as well as their reduced regulatory oversight. These advantages far outweigh any disadvantages resulting from secondary status to AVM in a small portion of the spectrum.**
- **Existing customers should not be disrupted. It is more detrimental to the public to displace an existing service than it is to displace one under development.**
- **The final rules may impact all users of the band, but the end result needs to be a more certain environment in which all products and services can continue to develop.**
- **Real world experience shows Part 15 and LMS do coexist and fears of incompatibility are severely overstated. The LMS community has endeavored to help alleviate these fears.**
- **There is sufficient evidence for an FCC decision to finalize the LMS rules to allow continued growth of this vital industry.**