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Before the
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Washington, D.C. 20554

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In the Matter of	)	
	)	
Amendment of Part 90	)	PR Docket No. 93-61
of the Commission's Rules	)	RM-8013
to Adopt Regulations	)	
for Automatic Vehicle	)	
Monitoring Systems	)	

EX PARTE COMMENTS OF AIRTOUCH TELETRAC

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EX PARTE COMMENTS OF AIRTOUCH TELETRAC

I. Introduction.

AirTouch Teletrac ("Teletrac") responds to the Commission's informal request for further comment on final rules for LMS (Location and Monitoring Services). Specifically, we comment below on:

- a band plan that separates the spectrum between wideband and narrowband systems,
- a set of criteria for defining interference to LMS systems from Part 15 devices, and
- a plan to award LMS licenses through auctioning.

II. Band Plan.

A proposed band plan for Automatic Vehicle Monitoring (AVM) systems in the 902-928 MHz band is:

Sub-band	AVM Use
902-904 MHz	Narrowband/AVI systems (shared)
904-910 MHz	Wideband/LMS system (System A)
910-920 MHz	Narrowband/AVI systems (shared)
920-926 MHz	Wideband/LMS system (System B)
926-928 MHz	Narrowband/AVI systems (shared)

Pursuant to this proposal, LMS systems in the 904-910 MHz and 920-926 MHz sub-bands would operate on an exclusive basis with respect to other AVM systems. Each LMS system's signals would be contained within its respective 6 MHz sub-band.

Teletrac generally supports this most recent proposal, with one minor change. As noted in previous pleadings, the Teletrac system design requires that its forward channels be separated from the wideband channels as provided for under existing licenses.[1] Therefore, Teletrac requests that each LMS license continue to include an associated allocation for narrowband forward channels in addition to the 6 MHz sub-band. In order to accommodate the concerns of Part 15 commenters in this proceeding, and to offer the greatest flexibility between LMS providers, Teletrac proposes that the existing 250 kHz forward channel be shifted from the opposite LMS sub-band to the upper edge of the band as follows: 927.50-927.75 MHz for System A and 927.75-928.00 MHz for System B.

Additionally, given the nearly 60,000 Teletrac subscriber units in service, in stock or on order, it is imperative that customers not be adversely impacted by changes in the frequency allocation for LMS services. Since the existing forward channel licensing is not consistent with the proposed band plan, Teletrac's existing forward channel at 925.015 MHz must be grandfathered. Presently this represents only one 25 kHz channel, and therefore, the implications to other users of the band is minimal. Teletrac requests that its existing forward channel be grandfathered in all areas for which Teletrac currently holds licenses.

Grandfathering for incumbent licensees is necessary because LMS services, as they are more widely deployed, will be used by consumers over extended areas within a region or nationally. To accommodate this need, it is important that customers be allowed to continue using existing subscriber equipment in areas adjacent to their local areas. When new systems are built-out, the presence of a common operating frequency will ensure compatibility across areas. This compatibility will result in reduced cost of services and equipment to the consumer by obviating the need for added expenses for: 1)

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[1] Under existing licenses a 250 kHz forward channel allocation for the lower LMS sub-band (904-912 MHz) is contained within the upper LMS sub-band (918-926 MHz) and vice versa.

subscriber unit redesign; 2) infrastructure equipment redesign; 3) retrofitting of existing systems to accommodate units designed for future systems; and 4) replacement of customer equipment to allow operation in new systems. Additionally, the Commission has recognized the public interest benefit inherent in multiple market networks.[2] Interoperability between existing subscriber units and future systems and the resulting economies of scale will provide service and cost benefits to the consumer.

These benefits offer a compelling reason for the Commission to grant the request for grandfathering especially since there have been no reports of adverse effects to other users of the band from the presence of Teletrac's existing forward channel. Compatibility will only be provided if the existing Teletrac forward channel is grandfathered or the currently licensed frequency allocation is maintained. Although maintaining the current frequency allocation is Teletrac's preferred approach and is in keeping with existing licenses and the NPRM, the request for grandfathering is viewed as an acceptable compromise to address Part 15 concerns regarding the placement of forward channels within the band and to provide greater flexibility to other LMS operators.

III. Interference Definition.

The Commission proposes to establish specific criteria for deciding if interference from a Part 15 device is harmful (or not harmful) to LMS systems. These criteria would be applied only to Part 15 devices operating in the proposed LMS sub-bands (904-910 MHz and 920-926 MHz). The criteria for Part 15 devices presumed to cause harmful interference to LMS systems would be:

1) devices with antennas greater than 5m above ground level,
2) 1 Watt Part 15.247 devices with greater than 6 dBi of antenna gain, or
3) Part 15.245 devices.

All other Part 15 devices would be presumed not to cause harmful interference to LMS systems. Teletrac emphasizes that the presumption must be rebuttable in the event that a LMS operator determines harmful interference is being caused by a particular Part 15 device. Otherwise, the value of the spectrum is greatly diminished because LMS

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[2] 220-222 MHz Report and Order, 6 FCC Rcd paragraph 30-39 at 2360-2362.

licensees would be forced to live with actual interference from unlicensed Part 15 devices.

Teletrac continues to support a proposal that retains the relative position of AVM systems (narrowband/AVI and wideband/LMS) within the band hierarchy. In addition, AVM operators must retain the ability to seek resolution of interference from secondary devices on a case-by-case basis as under the existing rules for those devices that do not meet the three criteria but nevertheless cause interference. Without this ability, the proposed criteria do not offer sufficient assurances that interference can be addressed when necessary. Without such assurances, the value of the spectrum would be diminished below a level for which payment could be justified and would be converted to shared spectrum which is not suitable for auctions.

Although the incidence of interference from Part 15 devices has been isolated, in each of these cases there has been a need to seek a resolution. To ensure the continuing ability of LMS licensees to operate in this spectrum, parties must continue to have an incentive to negotiate in good faith to eliminate interference. Neither the Commission nor other parties involved in this rulemaking can foresee the variety of scenarios in which Part 15 devices will be deployed and operated in the future. Therefore, there must be provisions for protecting the licensed LMS services beyond the types of devices known to present a potential for interference today, particularly since under the Commission's proposal LMS licensees will be paying for the right to access the spectrum and Part 15 devices will have no such obligation. The interference threshold and procedure for good faith negotiations proposed by some LMS companies could be used to resolve cases not covered by the proposed criteria.[3]

In the event LMS licensees are denied the right to rebut the presumption of non-interference, the first three criteria must be modified to decrease the 5 meter antenna height limit to 3 meters, and the 6 dBi antenna gain limit should be applied to all Part 15.247 devices. Furthermore, the following two additional criteria should be added; a) Part 15 devices operating at fixed installations located within a half mile of an LMS receive site; and b) Part 15 devices that transmit for longer than one second over any 10 second period.

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[3] "LMS Consensus Position on Part 15 Interference", June 22, 1994, Ex Parte Submission June 23, 1994

The ability to rebut a presumption of non-interference is necessary to address potential causes of interference. Without a substantially broad definition of devices that MAY be considered to cause interference, the ability to resolve unforeseen situations is greatly hindered. The inability to deal with a potential interferer because of a limited definition of what constitutes interference would greatly reduce the utility of the spectrum for critical services such as those provided by LMS systems. Therefore, the definition of devices presumed to be able to cause harmful interference should fall in favor of the licensed service provider.

If the Commission is compelled to establish criteria for devices that may be considered potential sources of interference without rebuttal, then at a minimum the changes and additions proposed by Teletrac should be made to the criteria. Even with these criteria, the Commission must establish a method for reviewing and adjusting the criteria in the event a new application or usage of a Part 15 device becomes a source of interference in the future.

With regard to the antenna height criterion, Teletrac recommends that it be defined as height above ground level (AGL) or height above average terrain (HAAT), whichever is lower. This will address the situation of a device mounted near ground level on a high hill or mountain. Such a situation has the potential for causing greater interference than a device at 5 meters above the ground in an area with relatively flat terrain.

IV. Auctioning.

The Commission is proposing to license wideband LMS systems on a mutually exclusive basis in each of the proposed LMS sub-bands (904-910 MHz and 920-926 MHz). Under this proposal, licenses not subject to grandfathering would be auctioned to the highest bidder.

Teletrac supports the Commission's proposal to auction the spectrum designated for LMS provided that the stipulated interference protection and the proposed definition of LMS, as set forth below, are incorporated into the rules. Anything short of either of these conditions would greatly reduce the value of the spectrum and effectively turn it into shared spectrum that would be inappropriate for auctioning. In addition, Teletrac supports granting licenses based on MTAs, given the regional nature of LMS use and the

need for consumers to access these services seamlessly over a wide area. Licensing on an MTA basis would minimize the regulatory requirements, simplify the auction process, increase the value and utility of services and therefore the spectrum, and minimize the risk to consumers of inter-system incompatibility.

Lastly, bidders must commit to provide service consistent with the proposed LMS definition.

V. Definition of LMS Systems.

In light of the Commission's proposal to auction the spectrum used for LMS systems, Teletrac proposes the following definition for such systems:

> "A system used for Location and Monitoring Services (LMS) must employ pulse ranging techniques to determine the location of a radio unit using land-based multilateration and must provide location services, and may provide data and voice messaging services."

This definition is consistent with that contained in the interim rules and the NPRM for AVM systems and assures that the spectrum will be used as intended by the Commission.

VI. Grandfathering Systems.

LMS licensees that have constructed systems prior to the auction date should be permitted to retain the licenses for those constructed areas. In addition, licenses held today that are not yet constructed should not be arbitrarily withdrawn from the licensees. Instead, licensees should be given a flat three year period after the date these new rules become effective to build out in conformance with the existing licenses. Teletrac and others hold legal licenses from the Commission, licenses they have refrained from constructing given the uncertainty created by this proceeding. Equity requires a uniform three year period for build out to allow licensees to construct the systems they are authorized to provide. For those areas in which there is more than one licensee for a given sub-band, the first system to achieve the build-out requirements should retain the license. Teletrac further proposes a build out rule that requires an LMS system to provide service to at least 100 paying subscriber units to meet build-out requirements.

For the purposes of grandfathering systems and determining the remaining area available for auction, the service area of a constructed system should be defined as the

larger of the area contained within a 55 mile radius from the city reference point or the area contained within a 35 mile radius about each LMS transmit station. Moreover, auctions need not be delayed by the grandfathering of incumbent licensees. Rather, parties will simply purchase spectrum in an MTA with the understanding that some parts of the MTA may be licensed to a different entity and, therefore, are unavailable.

VII. Technical Requirements.

Teletrac proposes the following technical requirements on LMS transmissions under the new rules to minimize the likelihood of interference problems between licensed users of the band.

A. Power Limitations.

Subscriber Units:	50 Watts ERP
Fixed Site Transmitters:	500 Watts ERP (in LMS sub-band)
	1000 Watts ERP (at 927.5-928.0 MHz)

B. Out-of-Band Emissions.

The following is proposed for out of band emissions for signals transmitted within the wideband LMS sub-bands:

"The mean power of emissions shall be attenuated below the maximum permitted output power of the transmitter in accordance with the following schedule:

For LMS systems operating in the 902-928 MHz band, in any 4 kHz band, the center frequency of which is removed from the center of the licensed sub-band by more than 50 percent up to and including 250 percent of the licensed bandwidth: As specified by the following equation but in no event less than 45 decibels:

$A = 35 + 0.6(P-50) + 10\log_{10}B$. (Attenuation greater than 80 decibels is not required.)

where: A = attenuation (in decibels) below the maximum permitted output power level

P = percent removed from the center of the licensed sub-band

B = licensed bandwidth in MHz.

Transmitters operating under interim rules may be permitted to exceed this limit on a non-interfering basis."

The proposed requirements reflect the usage of mobile unit transmitters (low to the ground, infrequent transmissions) and the effect on other users of the band. The out-of-band attenuation is ample given the transmitter characteristics. Also, the definition

accommodates existing signals whose emissions are currently within the bandwidth of existing licenses but would be out-of-band under the newly proposed rules.

VIII. Conclusion.

Teletrac is generally supportive of the FCC's proposal for auctions so long as the FCC adopts the revisions proposed herein.