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FEDERAL COMMUNICATIONS COMMISSION
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Before the
Federal Communications Commission
Washington, DC, 20544

In the Matter of	I	
	I	
Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing them.	I	**PR Docket 92-235**

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FCC MAIL BRANCH

To: The Commission

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List A B C D E

COMMENTS OF ALAN RUTZ

PREAMBLE.....Page 2

WHAT I THINK IS WRONG WITH PART 88.....Page 3

A BETTER WAY TO FIND NEW LAND MOBILE SPECTRUM.....Page 5

IF YOU'RE GOING TO DO IT, ANYHOW.....Page 12

SUMMARY.....Page 15

..... P R E A M B L E .....

I operate a Private Carrier Repeater in Northwest Indiana, about 40 miles Southeast of Chicago, Illinois. Because of the FCC

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action the F.C.C. takes in this matter.

I feel that Part 88 should not be implemented as proposed, because I believe that the proposed Part 88 is not in the best interest of my business, or the businesses that use my two-way radio service. It only offers my present clients added expense, reduced service, and less reliable equipment. All in all, Part 88 only offers pain for the two-way industry that I know. Part 88 could easily be the end of my 15-year-old business.

..... WHAT I THINK IS WRONG WITH PART 88 .....

Part 88 as written is promoting the idea that the land mobile industry can have more channels to use by forcing those presently on-the-air to "narrow" their occupied bandwidths so as to allow new radio users to have additional radio space to use. I believe that the FCC should be able instead to find some spectrum in the "vast wasteland" that is Television, or in the largely barren spectrum reserved for "government use", before it comes asking the land mobile industry to make such a large sacrifice.

Forcing Land Mobile to "narrow up" means that each transmitter that is on the air must meet new frequency tolerance requirements, have altered audio passband characteristics, have more narrow bandpass filters in every receiver, and suffer from degraded performance, and at the same time, cost a lot of money for conversion or up-

grading (if possible).

Test equipment presently common in the land mobile industry will probably not be usable, because of the strange new frequency combinations called for in Part 88, and may not have the accuracy needed to properly certify equipment in use.

I believe that this means that almost every existing transceiver now in use will have to be replaced by new equipment that will meet the additional requirements of Part 88.

I lease radio equipment to the users of the Private Carrier Repeater I operate, and I seem to read between the lines that the FCC thinks that I can write off my existing radio equipment in just a few years, thereby allowing me to buy all this new required radio equipment, but after 15 years in the two-way radio business, I can tell you that the profit margin just is not there to allow me to buy all-new radio equipment without a large increase in the amount that I charge my user/customers for what they now use. The equipment changes called for in Part 88 are of the type that demand higher cost, and more maintenance, which is the wrong direction to push two-way radio. A gradual conversion of a few radio units per year won't work for me, either, because the older units will immediately suffer too much loss of receive audio, without modification. For me, it is all, or nothing.

I note that if the present proposed Part 88 is implemented, I will be forced to buy expensive new test equipment, if for no other reason than the rather strange new channel frequencies that have been allowed to be proposed. I cannot now set a transmitter to a frequency of 470.303125 Mhz! My expensive IFR Service Monitor will

perhaps another blast of old-time TV programs being re-run in hi-fi video? The FCC needs to reconsider the concept that the "Public Interest, Convenience, and Necessity" should extend to getting the every-day business done around our Country, by making it a bit easier for American business to communicate.

Can the FCC consider the concept that even High Definition Television should be looking for ways to get its job done without asking for the use of another 50 Mhz of Spectrum? Why does High Definition Television need those guard channels, or could they be used right now by the land mobile industry to take the pressure off of congested channels?

I WOULD LIKE TO OFFER THE FOLLOWING IDEA

In my area of the Country, I am allowed to make use of television channel 14 for land mobile, and I am the operator of a Private Carrier Repeater on TV channel 14, that serves several businesses and several farms in my area, located just Southeast of Chicago. Due to my location only 45 miles from Chicago, I do understand the meaning of frequency congestion and overcrowding.

Since the "Chicago Region" experiment was started by the FCC perhaps 20 years ago, I believe it has proven that in many cases, two-way radio and television can make use of the same spectrum, without interference problems. My private-carrier repeater, and the dozens of others which use TV channel 14 in the Chicago area

should be that proof. We have been doing this for perhaps 20 years, and our two-way activity does not have any detrimental effect upon TV reception in the Chicago area, nor do our signals affect TV channel 14 operation where it may be used.

I would like to propose that another TV/land mobile experiment be

I propose that the FCC consider finding additional spectrum space for new land mobile activity by allowing 1.25 Mhz slices of these unused TV guard channels for low-power spread-spectrum land mobile use.

As the FCC knows, Spread-spectrum such as CDMA is proven to provide land mobile coverage with as little as 10% of the power levels considered normal for FM land mobile, is inherently a non-interfering medium by virtue of its lack of any carriers. I propose that if such low-power CDMA spread spectrum were allowed on Television guard channels in those cities now most requiring land mobile spectrum relief, no interference would result, due to the high levels of signal strength being delivered to households by television transmitters. A partial listing of possible TV frequencies in my Chicago-land area that could be used for CDMA spread spectrum follows:

TV Channel 8, an unused guard channel from 180 to 186 Mhz.
I propose the use of 182.250 to 183.500 Mhz for CDMA Spread-spectrum. I do not believe that any moderate CDMA transmitter power between these frequencies will cause any TV interference to Chicago's existing TV Channel 7, or TV channel 9.

TV Channel 10, an unused guard channel from 192 to 198 Mhz.
I propose the use of 194.25 to 195.500 Mhz for CDMA Spread-

spectrum. I do not believe that any moderate CDMA transmitter power between these frequencies will cause any TV interference to Chicago's existing TV Channel 9, or TV Channel 11.

TV Channel 13, an unused guard channel from 210 to 216 Mhz.
I propose the use of 212.250 Mhz to 213.500 Mhz for CDMA Spread-spectrum. I do not believe that any moderate CDMA transmitter power between these frequencies will cause any TV interference to Chicago's existing TV Channel 11.

I similarly propose such CDMA frequency slots of 1.25 Mhz be assigned to UHF-TV channel 17, 18, 19, etc., and similar guard channels of the UHF TV channels upward to TV channel 69.

I feel that in every major city (and in every rural area as well) such unused TV guard channels could easily satisfy the need for land mobile frequency expansion with no TV interference, and no disruption to existing land mobile users. As you already know, each such 1.25 Mhz CDMA spread-spectrum frequency slot will provide that area with 30-40 "clear-channel" audio channels, and there certainly are many accommodations to the available bandwidth for special purposes, such as walkie-talkies, mobiles, bases, portable alarms, computers, etc. I believe that assigning honest business two-way communications to these un-used television channels is very much in "the public interest".

Allowing CDMA spread spectrum would also provide the FCC with the means of introducing the benefits of wideband communications, such as improved data transfer, much better audio quality and improved reliability into the present land mobile arena. Most of all, it would introduce the element of competition into the land mobile arena, by virtue of the increased services it would allow into the land mobile market. I further believe that several land mobile manufacturers would be interested in providing CDMA mobiles, since they are already developing CDMA for Cellular and PCS, and I know

in operating technique which allows/favors emerging wide-bandwidth signals. Narrow-bandwidth modulation and its supporters have had almost 15 years to properly develop good equipment, yet is barely able to survive, while CDMA Spread-spectrum has existed (in the civilian world) for only about 5 years, and has managed to claw its way into a probable wide-band digital modulation form that will likely become the world standard for both cellular and future PCS communications. The FCC has certainly recognized the technical advantages of Spread-spectrum, and now allows it's use in many non-licensed applications on at least 3 different bands. Why force the workhorse two-way radio industry to swim against the tide, toward a modulation technique which is proven to be difficult, expensive, and a poor performer, which "narrow-banding" is?

Simple field testing of such CDMA signals would prove the viability of such a plan, which would create the additional spectrum relief the F.C.C. is attempting to find, without television interference, and without the severe cost that the present proposed Part 88 will cause to individuals and tax-payers alike. As a small business owner, I would appreciate the opportunity to apply for such a spread-spectrum TV-band assignment, and find this avenue much more appealing to me as a small businessman than having to buy, install, and service a whole new fleet of radios that will likely be expensive and difficult to keep operating, while all industry reports point to the economy, small size, and reliability of present and future CDMA mobiles and walkie-talkies.

Given the chance, I would consider trading my existing 25 Khz frequency assignment on 471 Mhz for the chance to build a TV/CDMA system in its place. I believe that enough other system operators and entities would want to make the change so as to eliminate a lot of the frequency congestion that exists on both VHF and UHF land mobile frequency bands, which might allow the majority of existing FM channels to be "converted" to Spread-spectrum in the future, especially if the FCC would re-write Part 88 to allow this.

IF PART 88 IS GOING TO BE IMPLEMENTED ANYHOW

If Part 88 is made into law as proposed, the provision allowing 5 Khz channels on VHF and 6.25 Khz channels on UHF does not make much sense to me. In this day of phase-locked loop frequency control, I believe that allowing an extra 1.25 Khz of spectrum space on UHF is a waste. I propose that 5 Khz channels be implemented across-the-board, on all frequencies that the FCC is proposing to modify. At the least, this would allow a lot of present-day test equipment to be salvaged.

If Part 88 is made into law as proposed, all services should be treated equally. I am opposed to the provision that allows high power for paging services, and reduces the amount of RF power I can operate at my site away from the city of Chicago. If paging

receivers cannot hear a weaker signal, how can it be that my customer can be expected to hear a weaker signal? In my many years in the two-way business, it is the Paging Transmitter that most often is the cause of severe interference to other lower-powered services, and the paging industry should suffer the same power restrictions as anyone else.

If Part 88 is made into law, the question of who shall "coordinate" seems to have become an issue once again. As I read the proposed Part 88, it seems that most of the present-day "Coordinators" all

doing the coordination effort, I would have the licensing proceedure back under the control of my Government, where you say it belongs, instead of bowing and scraping to the coordinators as I pay them my "private taxes" for their questionable service.

If Part 88 is made into law, perhaps a provision could be added to allow those of us that feel CDMA Spread-spectrum is a more viable avenue for improved land-mobile communications to implement pilot programs? Perhaps the more regulated, and more organized 470-512 Mhz TV band that contains my own Private Carrier Repeater could somehow be organized to allow such a pilot program? I know that I feel that within a couple of years, good, cheap, CDMA mobiles could be available from the extraordinary design and development that is now happening for CDMA digital cellular equipment. The promise seems to be for very economical, lightweight radio equipment that could easily be manufactured for use at 470 Mhz as well as 850 Mhz. I would like to be able to apply for such a developmental system.

I feel that ordinary 1.25 Mhz-wide CDMA Repeaters will soon be available that will not only allow enhanced mobile-to-mobile communications of both audio and digital information, but that such a CDMA Repeater will be able to "talk" to another CDMA Repeater perhaps 25 miles away, relaying a mobiles' information through 2, 3, or more CDMA repeaters to accomplish desired communications for larger distances, at cheaper cost to the end-user. This is the

stuff that develops American Business and lets us compete for the Global Market.

..... SUMMARY .....

I am now 54 years old, and have been in the Microwave, Multiplex, and Two-Way Industry for over 34 years. My best service was as a Air Force Bypass Specialist in Telecommunications, serving President Kennedy's Air Force One aircraft, but I can also remember when two-way channels were 60 Khz wide! I am not opposed to more narrow-banding, if that were the modern, best, and most economical solution, but <u>it isn't!</u>

All the World is swinging to wide-band, digital signals, because of error-correction, power advantages, better reproduction, smaller size, and <u>much lower equipment costs.</u> To have the FCC now propose a major change in the rules and regulations I live (and die) by which shifts away from the advantages being offered by TDMA, CDMA, and other digital wide-band signal formats and toward a plan which raises everyone's cost with a reduction in service area, and <u>most importantly</u>, with no increase in channel utilization, seems to be wrong to me.

If this present Part 88 does go through, and we all shift to extreme narrowbanded modulation, it may be true that more of us can have our "own channel", but the total amount of air-time per

channel will probably just go down. With CDMA, I am proposing a plan that is very efficient in the "re-use" of spectrum, since no particular slice of spectrum has to be reserved for only one person's transmissions. CDMA is the wave of the future, and the FCC should either get on board, or at least, allow no action on the proposed Part 88, until CDMA (and other similar digital wideband modulation techniques) have another 24 months to prove their mettle. They have done just fine in the last couple of years, toward proving that they are the best, most efficient use of