

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of)	
)	
Inquiry Regarding Carrier Current Systems, including)	ET Docket No. 03-104
Broadband over Power Line Systems (BPL))	FCC 03-100
)	
)	

REPLY COMMENTS TO NOTICE OF INQUIRY

GREETINGS:

As so aptly reported by other commenters in this, the above-captioned proceeding, the proposed Broadband over Power Line carrier current systems have clear potential to disrupt wireless communications across the entire High Frequency (HF) spectrum, among other bands. While substantial attention has been most rightly directed toward protecting licensed Amateur Radio Service operations (*See ARRL comments*), it is paramount to note that all other HF spectrum (3 to 30 MHz) needs to be likewise protected from any and all spectrum pollution.

One particular authorized radio service of vital concern within the HF spectrum is the 27 MHz Citizens Band (CB) Radio Service (47 CFR Part 95D). Contrary to what many would *assume* to constitute conventional wisdom, CB radio product acquisition and use remains vibrant today, and even more so over the past several years! *I cannot emphasize enough that the role of CB radio in present times is not to be underestimated.* One of the most often misunderstood subjects, a matter close to the heart of tens of millions of wireless consumers, is the present state of 27 MHz CB radio popularity and usage. Whether or not any of us are old enough to remember the glory days of CB radio during the 1970's, nearly everyone even remotely familiar

with CB has some knowledge of that decade's greatest fad. And fads, by definition, come and go.

DISCUSSION

When the CB craze of the seventies faded just as rapidly as it had arrived, many people both within and without the CB world naturally concluded that CB radio was either dead or dying. Aside from the fad though, how has CB radio popularity fared over the last two-plus decades? Even disregarding the entire CB craze phenomenon of the mid-1970's, a large number of communications volunteers and hobbyists, as well as occupational users and professionals, seem to feel that interest in CB radio has been on a steady decline over the past twenty years. But, is this assumption valid?

For the many of us who lived the CB fad in the mid-1970's, it's an all-to-easy, though not at all accurate, conclusion. In 1976, all 23 CB channels were loaded with traffic, in nearly every part of the country. The three main trucking channels then; 10, 15, and 21, were busy round-the-clock in even the sparsest areas, if they were within range of any major highway. Today, truckers nearly everywhere in the US are on one channel: Channel 19. The remainder of the 40 channels we have today enjoy sporadic usage, including Single-SideBand (SSB) operations on channels 35-40, and several of the lower channels with AM communications. The conclusion to which so many of us are too quick to jump? Simple: CB radio popularity has been on the decline, right? No!

Jumping to such a conclusion robs us of seeing some highly relevant realities. How can we see what's really going on? In the course of my own research over the years, I have noticed an unfortunate dearth of statistics on CB radio use, sales, manufacturing and imports, or much else telling. Finally, in early 2003, I caught up with a group of researchers at Michigan State

University. There, the National Science Foundation was launching a major multi-year research project on CB radio popularity in the US, and researchers were then in a preliminary round of source material gathering. I am privileged that research Associate Ms. Carol Ting has provided rudimentary but statistically significant figures and qualified observations for my use in compiling facts for publication, and appearing in this very report's *background* section. Much of what Ms. Ting has written, I paraphrase below. What these folks have found, you may find quite surprising!

BACKGROUND

Just how big was the CB radio fad of the 1970's? Staggering! CB radio sales soared from just under two million units in 1974 to over 11 million in 1976. Sales volume began plummeting just a year later, however. By 1979, annual sales volume had dipped to just under two million; about the same sales level seen just before the fad.

Research shows two main factors that spurred the beginning of the CB fad. One was motorists' need for fuel availability while on the highway during the Arab oil embargo. This was tightly coupled with the effect of the nationwide speed limit of 55 MPH and motorists' keen interest in related enforcement activity. The second factor was massive media attention in newspapers and magazines. Additionally, several country-western genre songs about truckers' exploits with CB radio became crossover hits, assuring air play on nearly every radio station featuring any form of contemporary music. Television shows and movies rapidly followed suit.

Far more ponderous though, are the snowball effects that brought the fad to an abrupt passing. Several factors came into play, each playing into the others. The first factor was a direct effect of the fad's rapid onset: Demand began to outstrip supply. In 1975 alone, some 12 million units were ordered for retail sale. But only five million were delivered. Distributors

routinely submitted duplicate orders in hopes of receiving adequate quantities.

New manufacturers entered the business, and related stock market performance would come to bear a strange resemblance to the Internet *dot-com* business boom that would occur two decades later. This market, that would prove to be sorely optimistic, caused distributors to amass excessive stockpiles of CB radio units. The marketing momentum at work in this case spiraled into what economists describe as a “hog-cycle” supply-demand imbalance which, as researcher Ting succinctly notes, typically leads to a dramatic market correction.

Another factor resulted from industry lobbying the FCC to authorize more CB channels. In the summer of 1976, the Commission responded by increasing the number of channels from 23 to 40, to be effective January 1, 1977. Sales of 23-channel CB radios were ordered to cease after that date, but sales of 40 channel units were not permitted at all prior to that same date. This literally shortsighted transition policy gave vendors only five months to clear out their collective massive overstock of 23-channel sets. An industry panic ensued, causing retailers to dump their standing inventories into the market at “fire-sale” pricing levels. Still-new 23-channel radio closeout units were often sold at a mere 20% of cost, just in time for a heavy Christmas shopping season!

Then, as 1977 dawned, new CB radios with all 40 required channels typically sold at *ten times* the most recent pricing of otherwise comparable new CB radios, sold only a month before. And, the new 40-channel radios were in *relatively* short supply. The hog-cycle effect of overstocking, coupled with a disastrous FCC transition policy, drove up CB radio prices (again, *relatively*) while choking the supply. The result was a steep plummet in CB radio sales, with a supply-and-demand dynamic that fueled an uncontrolled downward spiral from which the industry never *totally* recovered.

CONCLUSIONS

When we step back and look at the bigger picture however, we can see that, excepting the “spike” caused by the rise and fall of the CB fad, CB radio popularity has only increased over the ~45 years that 27 MHz CB radio has existed. That’s right, *consumer enthusiasm for CB radio has steadily increased, even since 1980*, contrary to the uninformed opinions often given as “fact” by those who no longer have a stake in consumer CB radio.

Statistical normalization of course, legitimately discounts aberrations that happen to be statistically insignificant when considering a larger range of data (a range several times *larger*, that is, than the aberration—the fad spike—in question here.) Therefore, when we look at the ~45-year span of CB radio history, even just roughly normalizing the approximately four-year spread during which the CB fad occurred, we can clearly see that *CB radio sales have increased nearly steadily over the entire span.*

The number of new CB radio units sold topped one million annually, circa 1973. This was up from about 100,000 new units licensed in 1960. Overall, sales had stepped up to roughly 1.8 million annually by 1980. Since 1980, new unit sales steadily increased to just over two million during 1989. After that time, sales dipped slightly to just under two million annually until 1995.

After 1995, CB radio annual sales have increased sharply through 1997, at a rate closely approximating that of the rise of the CB fad, circa 1973 to 1975! It is interesting to note that during these same years of the later 1990’s, the Family Radio Service (FRS) was introduced. It appears at this point that FRS radio popularity has complemented, rather than competed with, 27 MHz CB radio popularity.

To date, there is no real accounting for the tens of millions of CB radios already in

existence. I understand that the Michigan State University group's National Science Foundation study is still in process of investigating the status and use, as well as disposal of, previously sold units. Nevertheless, sales of new CB radio sets is an unimpeachable and solid measure of accelerating public interest in 27 MHz CB radio. With facts in hand rather than anecdotal observation and collective shortsighted individualistic opinion, we can assert with confidence that those who claim that CB radio popularity is dead or dying, simply do not know whereof they speak. CB radio is unquestionably alive and moreover, *growing* at an *escalating rate*.

Additionally, we must consider not only consumer demand, but also the immense number of *occupational and professional users of CB radio*. The American Trucking Associations, Inc. reports that 1.68 million Class 8 (semi-trailer) commercial trucks are on the road nationwide in recent years. Nearly all of them rely on CB radio 24-by-seven, 365, for tactical (operational) communications, professionally. To date, no alternative wireless products or technologies are on the horizon to eventually replace truckers' CB radio. While a growing number of over-the-road trucks are being equipped with satellite uplinks and wireless telephones, nothing else supplants CB radio's local *Push-To-Talk* functionality. CB radio is, and will continue to be for quite some years to come, the primary telematics technology choice among this class of occupational wireless users.

Given this, the 11-meter band in which 27 MHz CB radio thrives must be vigorously protected against interference from unlicensed (Part 15) devices as well as from any other services secondary to the CB radio service, in or near its spectrum band. CB radio is by design, a low-power radio service, since it is intended for local "short-distance" wireless communications. Therefore, CB radio's weak signals need to be especially carefully protected from interference. There are more *new* CB radio sets on the road and in homes now, than since

1980, *by far*. Some twenty times the number of new 27 MHz CB radios are being put into use every year, than in had been in 1973, and the present increase is rapidly approaching the number of new CB radios put on the air in 1975! Fact is, the number of new 11-meter CB radios being put on the air is not only *increasing*, but increasing at an increasing rate (indicating an upward spiral) as well.

ADDENDUM: HOMELAND DEFENSE

Our nation remains in the midst of the ongoing War on Terrorism, where preparedness is never an option. And emergency auxiliary communications must remain high on any individual's list of mitigation and recovery necessities. Given my extensive engineering experience in cellular networks, I can attest that wireless telephones often enough fail individual call attempts during widespread emergencies and at mass casualty incidents. The ill-conceived wireless Priority Access Service (PAS) program will now further aggravate such delicate situations. Repeaters, trunked or conventional, can certainly fail, and high-power commercial and amateur radio equipment drains batteries far more quickly than does a simple 4-watt CB radio transmitter. Additionally, CB radio's *simplex* mode of operation makes it totally independent of repeaters and other wireless network components. Besides inherent low power consumption, there is simply less of *anything* to fail during mission-critical local civilian disaster use.

Longtime Radio Emergency Affiliated Communications Teams (REACT) activist and life member Walt Young of Space Coast REACT in Florida explains the value of everyday citizen access to CB radio during times of widespread emergency. "The only saving grace, as I see it, are the REACT Teams and many Amateur Teams across the country who step up to the plate to assist," he insists. During Hurricane Andrew recovery efforts in Florida in 1992, as well

as during the very recent Blackout of 2003 (according to still-preliminary reports), REACT team volunteers were in a number of instances the only people who could speak wirelessly directly to the Public. Mr. Young notes this supports a Survey his team took at one of their roadside Safety Breaks. “We asked folks if they had a CB. About 70 percent of those questioned said yes, it may have been in a box, a closet, out in the garage, in the trunk of their car,” Young states. Regardless of whether or not this CB radio equipment was in regular use, *this majority of consumers surveyed have CB radios available for emergency use!* The Public seems to be aware to hook up (or re-hook up) these radios as needed for operation or simply to have on standby during Disasters. Young points out that even without commercial electrical service, any citizen can quickly hook her or his CB set up to their own car battery and slap an inexpensive magnetic mount antenna onto the automobile body in order to have instant emergency wireless communication.

Mr. Young explains that during the aftermath of Hurricane Andrew, it turned out that *REACT communications volunteers—with their mobile CB radio installations—were the only mitigation personnel available to communicate with the thousands of trucks coming into Florida with relief supplies.* Young asserts, it was found that none of the available amateur radio operators there at that moment had CB radio, or were in a position to utilize that mode, so, “Emergency Management...called us [REACT]. We went out to the rest area just south of Malabar [on Interstate 95] and set up our communications. We would give info for truckers to go to a staging area set up off the West Palm exit where they would then be dispatched to needed areas, rather than just going in blind and not knowing where to go...Those truckers really did appreciate it. They had no idea where they were going or where to unload. We ran it [staging area operations] for several days until the traffic slowed.”

Young concludes, “In addition, because of the roads being closed we had a packed rest area of people who could not get home. We ended up getting food donated and gave it to the people ‘camping’ there.” The Hurricane Andrew incident, “...also put us on the map to finally be recognized by Emergency Management, who had previously ignored us, and became an integral part of their operations.” And this recognition occurred in 1992, well over a decade after the passing of the CB *fad*, and some seven years after the introduction of the cellular telephone.

IN CLOSING

It is unconscionable that the Commission would seriously consider a mode of communications delivery that specifically and deliberately causes mass *pollution* of the electromagnetic spectrum environment. Good engineering practice has always sought to minimize unwanted emissions. And the FCC is the statutory guardian of spectral purity. BPL completely ignores the unproductive and obstructive radiation *filth* that fouls and renders unusable the surrounding air. Promoters of BPL are attempting to sell America a seriously faulty bill of goods. And in this process, they are leveraging a perceived technological ignorance on the part of the Honorable Commissioners, that such a scheme would produce the desired results without also producing the unintended consequences. The consequences for all are very real, and they will be severe. Certain parties *will* surely be held accountable for the debacle, and I dare say that the technological, legal, and political fallout won't be pretty.

The 27 MHz CB radio band, along with all other *authorized* services in the HF spectrum; our national Amateur Radio Service, International Broadcasting, Maritime, Aviation, Part 90 “utility”, and most certainly NTIA military and Homeland Security/FEMA HF DX services; must be protected *completely* from any interference capable of raising the ambient noise floor. Most, if not all, HF communications involve long-distance transmission or weak-signal modes,

or both. *Any compromise in the ambient noise floor level is clearly unacceptable. Any such compromise will result in catastrophic failure of all HF DX/weak-signal communications by absorbing all of these weak signals within such elevated noise level.* Hence, the Broadband-over-Power-Lines concept, with the current generation of *unshielded* electrical service cables and wiring, is patently unacceptable, cannot possibly be otherwise mitigated given the inviolate laws of physics, and so *the instant proceeding must be dismissed, with prejudice.*

Sources

Comments, ET Docket 03-104, American Radio Relay League, Newington, CT. 7 July 2003.

Standard Trucking and Transportation Statistics, ATA Economics & Statistical Analysis Department. American Trucking Associations, Inc. Feb./Mar. 1999, pp. 1,7.

Goldenber, J., Libai, B., and Muller, E. (Apr. 2002). "Riding the Saddle: How Cross-Market Communications Can Create a Major Slump in Sales." *Journal of Marketing*, Vol. 66, pp. 1-16.

Ting, Carol, et al. *The Rise and Fall of Citizens' Band Radio in the US*, National Science Foundation Research project preliminary report. Michigan State University, East Lansing, MI. 2003.

Actions Taken or Needed to Curb Widespread Abuse of the Citizens Band Radio Service, Report to Congress. US General Accounting Office, Washington, DC. 1975.

US Freight Transportation Forecast...to 2006, Standard & Poor's DRI. 1997.

Young, Walt. Letter to author. 19 Aug. 2003.

Additional information referenced from:

Dealerscope Merchandising.
Cobra Electronic.
Federal Communications Commission.
Midland Radio Corp.

SUBMITTED ELECTRONICALLY

This day, 19 August 2003

Alan Dixon, N3HOE
2721 Maderia Circle
Melbourne, Florida
32935-5594

Contributing Editor, *Popular Communications* magazine
Senior Telecommunications Engineer, retired
Former Republican candidate for appointment to the FCC (1996)
General Radiotelephone Operator PG-4-19631
GMDSS / Radar Operator and Maintainer DB-GB-005305
General Mobile Radio Service Licensee/System Operator WPUC720
Amateur Radio Service *Extra*-Class Licensee N3HOE
Member – American Radio Relay League (ARRL)
Member – Salvation Army Team Emergency Radio Network (SATERN)
Affiliate Member – Radio Emergency Affiliated Communications Teams (REACT)
Ex-officio – Baltimore County, Maryland Fire Communications Committee
Ex-officio - Baltimore County, Maryland 911 Task Force
Former Member – TIA / EIA Standards Committee TR45-AHAG

CORES FRN: 0003-3350-56