

In the matter of:

- Interference in the 800 MHz Band
- Proposed WT Docket No. 02-55

To: The Commission

## **1. Background**

Harmer Communications entered into the Commercial Wireless Telecommunications business in Maui, Hawaii in 1988. Ten 800 MHz YX SMR channels were granted by the Federal Communications Commission to Harmer's operations in 1988 to launch our Commercial Trunking system. Our system consists of two (2) primary repeater sites to provide radio coverage within the Island of Maui.

Harmer Communications' radio system has and continues to provide a backbone supporting Commercial and private two-way radio and mobile telephone service to several hundred subscriber units on Maui. We have "loaded" our channels over the past 15 years consistent with Federal Communications Commission loading requirements to achieve the ability to expand our system to our current forty-four (44) 800 MHz channels. Users of our trunked system include several County of Maui agencies, Construction companies, Transportation companies, Security related providers, Agriculture communications systems, and many other business and industrial companies on Maui.

Prior to the Federal Communications Commission's auction of the upper 200 channel block of 800 MHz SMR spectrum and deployment of ESMR technologies within subject band, Analog SMR operators and Public Safety communications systems operated very well within this spectrum meeting or exceeding system engineered specifications.

The affordability of auctioned spectrum was far above the reach of any small SMR operators running systems and wishing to participate. Although the majority of frequencies being used by most SMR's fell within the auctioned window of the upper 200 channel block, the commission required that the incumbents have the right to be relocated within the 800 MHz band with "like spectrum" through direct negotiation between Nextel and Harmer in our case.

## **2. The Problem**

As the ESMR technologies were deployed nationwide within the band of auctioned spectrum between 861/816 MHz and 866/821 MHz, it became apparent that neighboring Analog technologies above and below subject band sustained serious system degradation due to interference. Public Safety Government agencies operating within the 6 MHz NPSPAC band directly above the ESMR block have been severely impacted since these frequencies are sandwiched between ESMR and Cellular bands.

Harmer Communications entered into an agreement in October, 2000 to relocate its fifteen (15) channels in the upper 200 band to channels of “like spectrum” within the 250 “interleaved” channel band between 856/811MHz and 860/815 MHz region (directly below ESMR upper 200 band). Since the operation of Harmer’s system interleaved with Nextel in the upper 200 channels produced unbearable interference as Nextel continued to deploy additional sites wherever they pleased within Maui County, Harmer had no choice than to retune to the lower channels to obtain necessary frequency separation for interference mitigation.

Retuning a fleet of several hundred subscriber radios and the supporting backbone to alternative spectrum is no easy task. We are still in the process of collecting and reprogramming units for this migration. The very unfortunate part of this exercise is that the interference issue that we assumed would be reduced through frequency separation is now impacting Harmer’s operation on our new exchanged frequencies. Nextel now occupies frequencies splattered all the way from 851/806 MHz through 866/821 MHz. Without adequate buffers (guard banding) between ESMR operations and any analog technology, harmful interference will result.

## **3. Nextel Band Plan Proposal**

The following highlights Nextel’s proposal:

- Reallocate the 6 MHz of Public safety (866/821 MHz – 869/824 MHz) and the adjacent 10 MHz of upper 200 SMR channels (861/816 MHz – 866/821 MHz) for advanced technology commercial wireless.
- Reallocate the 800 MHz General Category and interleaved SMR B/ILT and public safety channels (851/806 MHz – 861/816 MHz) to Public Safety.
- Permit voluntary retuning of B/ILT incumbent and SMR incumbents to the new 900 MHz B/ILT and traditional SMR spectrum, or to the 700 MHz former guard band channels with the assistance of Frequency Coordinators on a first-come, first-served basis.
- Reallocate spectrum (2170/2020 MHz – 2175/2025 MHz) from MSS to exclusive terrestrial advanced commercial mobile communications services.
- Redesignate 4 MHz of the 5 MHz at 900 MHz (934/896 MHz – 940/901 MHz) from Nextel to traditional SMR/B/ILT.

- – 661/816 MHz to primary public safety use and B/ILT licensees be permitted to remain on these channels on a secondary, non-interference basis or voluntarily relocate to another band.
- Require mandatory retuning of all advanced technology SMR systems from the new proposed 800 MHz public safety block.
- Require mandatory retuning of all public safety licensees in existing 821 NPSPAC channels to the new proposed 806 MHz Public Safety channels through the assistance of a designated Public Safety frequency coordinator. Funding for cost of this retuning mainly from Nextel, and cellular licensees

#### **4. Problems with the Nextel Proposal**

This plan advocates the total reshuffling of licensed spectrum requiring hundreds of operators, users, customers, and licensees, to move aside to create a block of contiguous spectrum for the dominating ESMR entity that created the interference problem following the initial 800 MHz upper 200 channel auction.

- Harmer Communications has entered into an agreement with Nextel to vacate the upper 200 SMR 800 MHz channels and retune our subscriber's units into the same frequency band that is being proposed to become primary Public Safety. Since the Commission called for the retune to provide incumbents with "like spectrum" in accord to Section 90.699, this proposal leaves us operators with severely de-valued spectrum and operating secondary to Public Safety. I strongly question the legality on this issue.
- There is a good chance that our newly acquired channels will, under the proposed Nextel Plan, require us to move again. This time the cost of relocating lies on the incumbent.
- Permitting voluntary retuning of B/ILT and SMR incumbents to the 700 MHz former guard band channels is a questionable move since Nextel is not the traditional licensee, but designated as the "guardband manager". This may be a clean area for incumbents to relocate to, but aside from the legality of authorizing arbitrary usage of this band, the availability of equipment in this frequency is very scarce. If Nextel encumbers the cost of relocating to 700 MHz, this plan begins to make sense assuming equipment availability.
- Relocation to the 900 MHz spectrum for incumbents suffers reduced coverage and cost of relocation, and vendors appear to be removing 900 MHz from their product support. Due to the channel bandwidth allocations of 800 MHz vs. 900 MHz, the transition to 900 MHz results in a loss of bandwidth per channel.

- Relocation of Public Safety systems to lower 800 MHz is a significant proposition. This transition must be carefully studied on a case-by-case basis to determine the feasibility of migrating. Public Safety entities must have the opportunity to determine the acceptable level of discomfort and the costs associated with seamlessly rebuilding their networks through this proposed retune. A more realistic approach to determine the cost of retune of Public Safety would be to require relocation negotiation between Nextel and the incumbent prior to any actions by the commission to mandate frequency reallocation. This will be sure to accurately determine the cost of relocation vs. the proposed insufficient allocation of \$500 million. Public Safety, Business and Industrial licensees or commercial operators should not have to fund any of the cost of retune, nor shall Cellular.
- Wireless industry tower site management professionals have loosely adopted a rule surrounding co-habitation telecommunications sites. The rule is: The last one to install their equipment at a given telecommunications site that produces interference to any other existing provider is responsible to remedy the situation. I believe this rule also applies to the situation at hand.

## **5. Conclusion**

The interference issue is a very serious problem facing the 800 MHz wireless industry. Nextel is the first to step up to the plate with a comprehensive plan to this situation, honorably so, since Nextel was the most recent provider to deploy high density RF transmissions in the 800 MHz band. Although Nextel is quick to blame by most for the violent interference issues to the NPSPAC frequencies, several case studies indicate that by removing the Cellular component above the NPSPAC band while leaving the Nextel component alone...Low and behold the interference goes away. But since Nextel was “the last one to install their equipment”, they need to remedy the situation.

The SMR/B/ILT operators at 800 MHz are a different complication. Here we have commercial SMR operators, Taxicabs, Local Governments, Transportation companies, Airport security providers, electricians and plumbers utilizing 800 MHz. Typically these systems suffer receiver desense problems and overload within about a ½ mile radius of any Nextel site. Since the frequencies from 852/806 MHz – 861/816 MHz are interleaved with Nextel for these operators, there is currently nowhere to go to mitigate damaging interference. In this case, due to the close proximity of frequency spacing, Nextel is the sole entity to blame for interference and should be solely responsible for the clean-up.

The proposal provided by Nextel addresses solutions to eliminate Public Safety interference. The winners in the proposal are Nextel and Public Safety, assuming Nextel will be required to exclusively pick up the tab on Public Safety relocation. The losers in the proposal are SMR/B/ILT users at 800 MHz. If relocation is funded through relocation negotiation where Nextel pays reasonable costs of relocation and these operators are left with exclusive “like spectrum”, the plan begins to make sense.

The Nextel plan is premature and needs further refining. An optional plan would be to require the entity responsible for the interference issue at hand (Nextel) to relocate to 700 MHz paired with their proposed 2 GHz spectrum and leave all original entities alone at 800 MHz. This may prove to be the most cost effective solution for the responsible entity, especially in light of the E911 location requirement in which Nextel most likely will be required to replace all handsets at some time anyway.

Harmer Communications strongly recommends that the Commission not act on the Nextel plan, and to further address the conditions of this very important matter to better satisfy the needs of the Public safety and SMR/B/ILT users.

Respectfully submitted,

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