

## Technical Solutions

It can have escaped no one's notice that the vast majority of the comments received urged the Commission to look first toward technical solutions. Technical solutions are rightly viewed as more immediate, cost effective and equitable than the more radical idea of relocating licensed systems to other spectrum. This position is greatly supported by the sheer cost of relocating hundreds of thousands of units, particularly if those units are operated by non-interfering systems. The various plans put forth are often long on rebanding ideas and woefully short on financial ideas. SBT appreciates the problem of financing any rebanding proposals, however, the NPRM requested that commenters take a run at it, and so we have. And though the approach is novel, SBT does not believe it is beyond the pale of reasonableness. This said, one must first approach the first task, to provide a more immediate plan to reduce incidents of interference via rules which provide for a more harmonious operation within the 800 MHz band.

To be sure, the comments set forth adequate descriptions of the types of interference being suffered by specific public safety agencies, but do not entirely focus on the source beyond speaking to low-site, cellularized architecture. And although the source is accurately identified, the Commission must focus on what makes this type of operation a threat to public safety systems. The answer appears to be, in large measure, power density of undesired signals. Stated another way, it is not merely the creation of IM products and OOBE, but the power density of those spurious signals, which is at the root of the problem. Therefore, technical solutions would look to reducing both the source and the power density of IM products and OOBE from interfering facilities.

## Interference Avoidance

All operators are admonished under law to take reasonable steps to avoid the creation of harmful interference. Any contrary position suggested in this proceeding is simply without merit. Further, any suggestion that a person is operating in a lawful manner, while simultaneously and knowingly creating harmful interference, is also fatally flawed. Good spectrum management requires that all operators are responsible for operations which do not destroy the operational capacity of other systems, regardless of the whether the equipment employed is type accepted and the operation is performed pursuant to licensing. Therefore, as a first and necessary measure, the Commission must find that interfering operators are responsible for taking immediate actions to avoid and resolve interference problems. Absent this underlying premise, the Commission leaves itself and public safety entities at the mercy of entities which are too often driven by profit rather than public responsibility and removes from itself the legal foundation for acting to assist in resolving the subject problem. This considered, the following suggested steps would go some distance toward promoting avoidance of future interference.

### **Step One**

SBT avers that a logical first step would be testing each potentially interfering facility (PIF), by recording the IM products produced at each site via direct connection to the transmitter feedline at a point before the antenna, and following all associated hardware, to determine what IM products are being produced. Armed with this information, the operator is alerted regarding what IM products might result in the creation of harmful interference. If certain IM products appear to be problematic, the operator can act to cease transmission on one or more channels or

take other substantive actions to eliminate particularly dangerous situations. Such testing would be part of all system construction or modification of PIFs. The operator should record the findings as a portion of the station records which might be quickly examined if a future problem should arise. Therefore, information regarding the presence of IM products which are later determined to be problematic would be known, and paths to interference resolution would be established. Of particular necessity would be recording the channels upon which public safety and other operators are providing service, and the level of IM products falling within those channels. Simply by proper testing and recording, system engineers would be highly encouraged to self-coordinate the use of PIFs with existing users, and thereby reduce the threat of harmful interference.

## **Step Two**

When two or more PIFs are located in immediate proximity (such systems are often collocated on the same or adjacent structures), field tests should be made to determine what IM products are co-produced via operation of the two PIFs. All relevant IM products should be recorded and all existing uses by public safety and other users would be also recorded to assure that engineers are again engaging in self-coordination prior to operation. These tests would be performed each time that a PIF is constructed or modified. SBT suggests that such tests should be required for all operations where PIFs are situated on the same structure or within 100 meters of each other. Again, remedial actions would take place prior to operation of the new or modified PIF, thus reducing the threat of interference to existing users.

### **Step Three**

To reduce power density of sideband emissions which can increase dramatically the noise floor and result in desensitizing receivers, the Commission should reduce the authorized ERP of PIFs to no more than 20 watts. The construction of low-site facilities is to serve a highly limited geographic area, to increase system capacity where demand is greatest. Accordingly, some limitation on ERP is a logical step to interference avoidance and happily coincides with the uses for these sites. The Commission may also consider whether a limitation on received OOB signal strength at a set distance from the PIF is appropriate. For example, PIFs which create IM products or OOB emissions within the 800 MHz band which signals are greater than -90 dbm received strength, when measured at a distance of 50 meters from the base of the PIF antenna supporting structure, are a likely source of interference for existing analog users. Although informal methodologies sometimes suggest that testing engineers record received signal strength as an average of readings taken from six or more positions around the PIF, SBT avers that such averaging methods obscure problems created by signals produced by a single antenna which might be a part of a 12-panel array. Accordingly, SBT recommends that averaging not be employed and that a position-by-position recording method be used to discover and record all relevant field strength measurements of undesired signals.

### **Step Four**

Changes in the use of particularly dangerous equipment should be mandated. For operators of PIFs, it is the use of hybrid combiners and downtilt antennas that should be curtailed. As the comments clearly show, the use of hybrid combiners increases the amount and

severity of spurious emissions which result in harmful interference. Accordingly, present and future uses of hybrid combiners should be eliminated. As for downtilt antennas, the effect on power density is obvious and intentional. The use is intended to saturate the area beneath the site with substantial power, however, that saturation also includes undesired signals. SBT recommends that such uses be limited to no more than 20% below the horizontal plane for PIFs.

#### **Step 5**

The construction of low-site facilities is often without regard to the surrounding terrain. Thus, incidents arise due to the existence of surrounding roads which place receivers in too-close proximity of the horizontal plane of the main lobe of a radiating facility. This problem can be addressed in the Commission's definition of PIFs, to include not just AGL, but HAAT as a factor in determining what facilities are subject to more stringent limitations in design and operation. However, traditional HAAT measurement techniques provide for averaging values, and therefore, some variation on this method will be required to assure that the facility is rendered safe in all relevant directions. SBT recommends that PIFs not be situated such that ground level is any closer than 20 meters below the main lobe at any point within one hundred meters of the PIF.

#### **Step 6**

To monitor the use of PIFs, the Commission should mandate that all relevant information, including location, HAAT, frequency use, IM products, collocation information, field tests, etc., be recorded in a central location for access by the Commission and licensees. Such information

would be routinely updated by PIF operators following construction or modification. It could also be employed as a valuable information source for public safety entities seeking answers to why receivers have stopped operating properly in a particular location. Although the Commission has reaped substantial administrative efficiencies via geographic licensing of broadband systems, the result is a veil of ignorance for public safety operators who discover that a problem exists, but do not know the potential identity of the persons responsible. Weeks may pass before the exact location of the facility and the identity of the operator is known. This is unacceptable. Such information could be kept by a private, neutral data manager and funded by PIF operators in a cost effective manner, and certified as accurate by the person filing the report. Failures to provide and update such information would be reported to the Commission for further, appropriate action.

#### **Step 7**

Notification of construction and modification of PIFs would be made by the data manager to all relevant parties which would include all persons licensed to operate an 800 MHz facility within a 35-mile radius of the constructed or modified PIF. Such notifications would be made electronically to potentially affected licensees, which licensees would be able via passwords to enter into the data management system and obtain all relevant information regarding all PIFs within their operating region.

The seven steps outlined above would go a great distance toward reducing the incidents of harmful interference with which this proceeding seeks to deal. Although the steps do require some costs for operators of low-site cellularized systems, including some equipment replacement

and altering some existing system designs, SBT avers that those costs pale in comparison to any radical rebanding at 800 MHz. Additionally, it allows for entities which seek to continue the use of such facilities to expand such use under strict guidelines. Although SBT does not claim that these steps will eliminate all interference problems which might be suffered, the employment of good engineering practices coupled with access to necessary information is a giant step toward self-coordination and industry responsibility in the design of networked, broadband systems.

A step further in technical solutions requires mandating some simple receiver standards. As noted herein, manufacturers of 800 MHz analog receivers employ an extremely wide passband, allowing reception of signals often across the entirety of the 851-869 MHz band (and sometimes greater). This is simply too much. The too hostile radio environment within that 14 MHz of spectrum simply invites and promotes the reception of OOB from cellularized operations. The contrary opinions supporting no creation of receiver standards speak to innovation and deployment of future systems, but ignore the problem being suffered by allowing continuing manufacture of receivers that are not properly designed for the environment in which they will operate. Accordingly, SBT recommends some basic changes in receiver design, to limit the passband aka front end of the receiver units. If the Commission does not reband the 800 MHz band or relocate public safety to 700 MHz, the Commission should mandate that all receivers which employ NPSPAC channels be limited to receive only those channels. Although such limitation will not eliminate interference from IM products which are located within the NPSPAC channels, it would provide substantial protection from interference received from other sources across the band, and encourage further investment in the NPSPAC channels from public

safety entities which might be hesitating to take further steps during the pendency of this matter and the concurrent threat to future use of the band.

SBT expects that this recommendation will be opposed by public safety entities which wish to employ NPSPAC channels within the same receiver as other 800 MHz channels located lower in the band. Arguments regarding system design flexibility and migration to NPSPAC from existing systems will be heard. However, SBT contends that public safety's cooperation must be a portion of the overall solution to the problem and this area of cooperation is likely the least costly for public safety. It simply requires that public safety entities make a choice as to their area of operation on the band and adjust their design plans accordingly. The above considered, SBT welcomes all cost effective solutions of receiver improvement which recognize that the manufacturing efficiencies in production of receivers with wide front ends is contributing greatly to a continued environment of uncertainty for all 800 MHz operators.<sup>153</sup>

#### Interference Resolution

Above, SBT has outlined a comprehensive program for avoiding the creation of interference. Although SBT is confident that the suggested steps would go a long way toward avoidance of interference, SBT avers that a system of resolving interference is required, as the avoidance program is not guaranteed to be a panacea for all threats of interference. Commenters have suggested use of the Best Practices Guide for the purpose of future resolution of

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<sup>153</sup> Concurrently, SBT rejects any suggestion that the problems suffered by analog operators is due primarily to the operation of outdated equipment. In fact, the newest analog receivers still receive harmful interference from desense and IM products, a fact which was known prior to the construction of interfering systems by carriers.

interference complaints.<sup>154</sup> SBT has reviewed carefully that document and, as shown at the attached comment to the BPG, SBT doubts seriously whether that document can serve as a basis for interference resolution. The document is a loose series of a suggestions, urging cooperation between operators, lacking specificity, and it is without necessary timetables for action. In sum, it works little better than 47 C.F.R. §90.173(b).

To be effective, interference resolution must be a proactive program of preparedness, with clear time lines for action by the interfering carrier and the public safety or other operator affected by the interference. A major portion of the preparation necessary to guide personnel used for resolution is contained in the testing/notification function outlined above. This information serves as a base line for determining where IM products and spurious emissions are being created which threaten the viability of a victim system. Therefore, when a carrier receives information that its system may be the source of interference to an analog system, the carrier is pre-armed with vital information that can be used to determine whether conditions have changed within the radio environment in which the victim system operates. For example, fire department notes that its receivers are suffering from interference in a particular locale. The fire department can access the data warehouse and obtain specific information about the likely source of the interference, including whether a new or modified facility has been made operational which might be the source. Based on the geographic information regarding the location of the interference, relevant carriers can be alerted and their personnel will be armed with updated engineering information to determine whether nearby sites have altered operations from that reported. The baseline is that testing information which earlier demonstrated that interference

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<sup>154</sup> See, *supra* note 6.

was unlikely. Accordingly, carrier personnel are sent to determine what changes in that baseline have occurred which have altered the radio environment. This lowers the amount of time necessary to discover and remedy the problem.

Some commenting parties have stated that the nature of public safety communications is so important that the Commission should take all steps to eliminate entirely the threat of interference to operations. Although such absolute positions are attractive given the nature of the services provided, such a goal is likely impossible or impractical within the 800 MHz environment. The use of wireless communications is subject to many abnormalities, changes in environment, phenomenon, and tuning issues that to bullet-proof all public safety operations (even from themselves) is at best difficult and likely impossible. Accordingly, good spectrum management requires that parties be alert to interference and willing to deal effectively and immediately with situations that arise.

Some of the comments from public safety entities suggest that interference resolution for emergency situations might require interfering carriers to shut down offending sites until the problem might be resolved.<sup>155</sup> SBT agrees. It is recognized that this is a serious action which is not suggested lightly. However, the nature of public safety, critical infrastructure industries, and local operators that provide service to public safety entities is such that extreme measures are required to prevent loss of life or property.

Although the suspension of service from a cell might lead one to think that subscribers would be deprived service from the affected carrier, this impression is incorrect. Most interference complaints involve the operation of low-site cells that are often fill-in facilities

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<sup>155</sup> See, comments of Hawaii and COV.

within urban areas, which areas include other cells for provision of service. SBT does not suggest that entire systems be shut down. However, discrete cells located in proximity to the interference would likely require suspended service during some period until the interference is resolved. Additionally, the shutting down of offending cells until interference is resolved places the burden for immediate action on the appropriate party, the interfering carrier. One problem which SBT has noted is the delay between reporting of interference and the time when any substantive action is taken to resolve the interference. The time period may be days, weeks or months; which time is unacceptable for the victimized operator and those persons who rely on the affected system.

Based on the foregoing, SBT recommends that the following steps be mandated for resolution of interference complaints:

### **Step One**

All carriers employing cellularized operations for the delivery of service to the public will create a department for the specific purpose of contact to respond to interference complaints. The Contact Personnel will be trained in interference resolution and will be authorized to order the discontinuation of operation of discrete cells, if such action is deemed appropriate. The contact information for this department, which will be operated 24/7, and all other relevant contact information regarding local personnel will be provided to the data warehouse for posting, which contact information will also be available to the Commission's employees.

## **Step Two**

All operators whose systems are receiving harmful interference may contact the Contact Personnel of the relevant carriers, either telephonically or electronically via email, to commence immediately the resolution of interference. Such contact may involve Commission personnel from the relevant field office pursuant to conference calls which include the carrier(s) and the party receiving interference. All persons involved in assisting the resolution will have available the relevant data contained in the data warehouse regarding the operation of the carrier(s) facilities in the relevant areas.

## **Step Three**

All persons are required to be fully candid with one another regarding the provision of any technical information required by each to participate in resolution. All persons will discuss openly the evidence of interference and the location where such interference is suffered. Under no circumstances shall the carrier(s) require the affected operator to demonstrate proof of interference by provision of engineering information, unless such engineering information has already been gathered. A carrier which suspects that another carrier's operations may be

involved will be required to contact the other carrier for the purpose of participating in forwarding interference resolution and such contacted carriers are obligated to participate.

#### **Step Four**

In an emergency, public safety end users<sup>156</sup> or licensees may request that suspected interfering cells be shut down until the emergency situation passes or the interference is resolved, whichever is sooner. In such event, the carrier's Contact Personnel shall cause the suspected cell to be shut down immediately, however, within no greater than one hour following the public safety entity's making of such request. For non-emergency situations, the carrier shall respond within twenty four hours to the interference complaint and, if no resolution can be arrived at within forty eight hours, the carrier will shut down the cell until such time as the interference is resolved. In the event that another carrier's operations are involved, the other carrier will also respond within twenty four hours following notification and if no resolution is arrived at during a forty eight hour period following notification, the other carrier's cell shall also be shut down.

#### **Step Five**

During all periods relevant to resolution, the parties shall provide continuous cooperation to each other including participation in any testing which is required to resolve the problem. All parties shall provide necessary personnel to provide such cooperation.

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<sup>156</sup> SBT recommends that the ability to demand an immediate cell shut down be made available to public safety entities receiving service from local SMR operators, as well.

### **Step Six**

If the carrier and victim operator mutually conclude that new equipment or channel swapping is required to effect a long-term solution to the interference problem, the cost of all such actions shall be borne exclusively by the carrier(s) and any transition shall be performed in a manner which is as seamless as might be reasonably possible. The Commission will entertain all requests for Special Temporary Authority deemed reasonable and necessary to provide to all parties necessary authority to assist in any operation in furtherance of the parties' obligations to obtain required authority for operation on new channels or from new locations.

### **Step Seven**

Within ten days following resolution of the complaint, a report shall be filed by the resolving carrier, verified by the party receiving interference, with the data warehouse regarding the interference complaint, the cause, the manner in which the complaint was resolved, and any relevant comments by any participating party. In this way, the information will serve as a guide to personnel seeking methods of resolution for any future complaints; and will serve as a service record associated with the interfering carrier's relevant cell.

### **Step Eight**

Under no circumstances shall any cell site be made operational (except for purposes of testing) which cell has been the subject of an interference complaint and which interference complaint has not been resolved. Licensees that violate this prohibition shall be deemed to be operating without authority.

The eight-step program outlined above allows for rapid response and resolution. SBT does not suggest a specific method for resolving each unique circumstance, since such methods should be left to rf engineers, employing good practices to determine the source of the interference and the most effective method of resolving interference for each unique circumstance. What the program is intended to do is to require resolution and to place the burden on the interfering operator, which operator is armed with information residing in the data warehouse. The object, therefore, is obtaining rapid results and during the pendency of resolution, to remove the source of the problem from the radio environment, providing necessary protection and communications capability to victimized operations.

Nothing contained within the program can be deemed radical or a departure from past policies of the agency. The agency has often required that facilities be shut down until interference problems can be resolved. The only material difference is the creation of a specific time period for carriers to react to the demand for interference resolution. To further facilitate and make effective the obligations upon carriers, SBT recommends that the Commission determine that all PIFs are operating under secondary authority. In this manner, the Commission will forego any issue regarding whether operators of PIFs are entitled to procedural protections prior to being ordered to shut down an offending facility.

It should be noted that secondary status for these facilities does not create any undue risk or uncertainty for those licensees, since each operator likely holds overlay licenses, exclusive geographic licenses, or other primary high sites which produce a contour that fully encompasses the affected PIF. Accordingly, there exists little chance of licensing mischief arising out of designating these sites as secondary, except providing the Commission the authority necessary to

demand that a particular PIF be shut down until interference problems can be resolved. Further, it will place PIF operators on notice that design and use of such facilities should be done judiciously and with full recognition of the rights of other operators.

The Steps outlined above for Interference Avoidance and Interference Resolution are specifically designed to promote cooperation, self-coordination, better recognition of the responsibilities of operators, improved communications, information resources, and emergency reactions. Nothing contained above will create enormous costs for any affected operator. And no remedial action is required which responsible operation would not already dictate. SBT avers that adoption of these proposed steps (coupled with some additional rules suggested herein) would reduce dramatically the threat of interference to public safety systems and other operations within the 800 MHz band, while concurrently creating a system of interference resolution to promote immediate and effective action by interfering parties.

#### Rebanding Proposals

SBT has studied carefully all rebanding proposals contained within the comments received thus far within this proceeding, and find that each of the proposals would result in enormous costs with limited effectiveness; or, in the case of those that would consent to at 10 MHz give-away to Nextel, would result in a highly inequitable result. The underlying problem with each proposal is that none is based on well articulated technical solutions that might go quite far enough in reducing the threat of interference. And many suggest a shared-burden approach of rebanding that relies on non-interfering parties' relocation and contribution. Some, the most radical being Nextel's, create such an enormous impact on small business as to place in

jeopardy those businesses. Such radical, inequitable proposals should be summarily rejected as failing entirely to demonstrate any balancing of the interests of affected parties.

As stated above, SBT supports a relocation of public safety out of the 800 MHz band and placement of those systems within the 700 MHz, foregoing that auction of spectrum within the 700 MHz band, to provide necessary additional and superior spectrum to public safety entities for their long-term goals of flexibility of system design coupled with greater advantages in promoting interoperability. SBT further supports any action by the agency which would displace incumbent broadcasters by 2006 within that band. SBT suggests that the agency could direct those broadcasters to retune existing analog systems to the new DTV spectrum, then later convert to digital operations at that spectrum.

SBT, however, avers that absent a relocation of public safety to 700 MHz operations, no rebanding should be performed at 800 MHz. Instead, SBT recommends adoption of its technical solutions proposed herein. Following adoption of the technical proposals and further study, the Commission may deem that rebanding is necessary, however, such actions appear premature prior to the adoption of technical solutions to determine whether licensees' cooperation in accord with such mandates nets the desired effect.

ONLY if the Commission does not adopt technical solutions; or if the Commission adopts technical solutions but later deems that rebanding at 800 MHz is necessary, without regard to relocating public safety to 700 MHz, then SBT recommends the following rebanding be performed:

- 1) NPSPAC licensees should be relocated to the General Category Channels or on channels abandoned by Nextel and Nextel Partners hereunder, on a channel by channel basis.
- 2) Nextel and Nextel Partners operations below 861 MHz should be relocated to the NPSPAC channels.
- 3) All channels made available by Nextel's and Nextel Partners' relocation from the General Category channels should be designated exclusive public safety channels.
- 4) All channels made available by Nextel's and Nextel Partners' relocation from the interleaved channels would be subject to public safety's primary use and, if following a period of three years, channels remain unlicensed by a public safety entity, the B/ILT and SMR operators would be eligible to apply for unused spectrum to increase the capacity of existing systems.
- 5) All cost of relocation of public safety to lower channels should be borne by Nextel or Nextel Partners, based on the geographic location of the affected public safety entity.

The effect of this rebanding plan would be as follows: Nextel and Nextel Partners would be removed from operations adjacent to public safety and public safety operations would be fully removed from any effect by operation of cellular A & B systems. Although public safety would lose use of contiguous spectrum from 866-869 MHz, there is no evidence that public safety was moving toward use of that spectrum for wide-band operations and, thus, it is not materially harmed by use of discrete frequencies on the lower bands. The amount of spectrum licensed to Nextel and Nextel Partners below 861 MHz is, in the aggregate, greater than 3 MHz, thus public safety would obtain additional spectrum. To assure that public safety receives use of the formerly

Nextel channels, the Commission would only allow public safety entities to apply for licenses to operate site-based systems below 861, except on those channels specifically allocated to Business and Industrial use located between 854.750 - 856.0125 MHz, which would be initially available only to the public safety with eligibility opening up after three years. Thus, public safety would obtain Nextel's and Nextel Partner's channel position in the "Lower 80" SMR channels.

Although Nextel's channel holdings would be reduced overall, such reduction would be replaced by its use or potential use of contiguous spectrum from 861-869 MHz, pursuant to present incumbent licensing and fulfillment of any outstanding relocations under 47 C.F.R. §90.699. All other operators would maintain their licenses, not subject to relocation.

This "worst case" rebanding proposal is offered as the most equitable method of reallocating 800 MHz spectrum in a manner which leaves undisturbed non-interfering operators, will cost the least of any rebanding proposal offered, provides for a method of equitable financing of relocation of public safety uses, and provides additional spectrum for public safety's future use. This said, SBT continues to recommend that no rebanding of 800 MHz channels occur, except such actions which would cause the migration of public safety uses to 700 MHz. Additionally, SBT strongly urges the Commission to take no action to reband uses at 800 MHz until such time as the Commission has attempted technical solutions to the interference problems in accord with the proposals made herein, and has found such solutions to be ineffective for reducing and responding to interference complaints.

Accordingly, SBT recommends that the following rules be adopted by the Commission to provide those necessary protections and interference resolutions proposed herein:

**RECOMMENDED NEW RULES FOR  
PROVIDING TECHNICAL SOLUTIONS**

[Add to definitions at 90.7]

*Low-site cellular facilities.* Facilities producing digital emissions which have the following characteristics: (1) use of twenty or more 800 MHz channels at a single location and (2) with antennas situated at either a height of less than 30 meters above ground level or less than 135 meters AAT and (3) which provide automatic handoff capacity to associated mobile units and (4) provide interconnected service to associated mobile units.

[ Add as new subsection 90.173(o)]

Persons operating low-site cellular facilities shall take reasonable actions to avoid the creation of harmful interference to licensed systems, including that interference caused by intermodulation products, out of band emissions, sideband noise, and desensitizing of receivers; and shall take such actions as are identified herein at section 90.638.

[Add as new subsection 22.352(d)]

Persons operating low-site cellular facilities shall take reasonable actions to avoid the creation of harmful interference to licensed systems, including that interference caused by intermodulation products, out of band emissions, sideband noise, and desensitizing of receivers; and shall take such actions as are identified herein at section 22.354.

[ Add as new sections 90.638 and 22.354]

**Operation of low-site cellular facilities:**

(a) Operators of low-site cellular facilities will perform the following:

(i) Cause to be recorded with the Cellular Data Warehouse a record of the call sign, location and technical operating parameters of each low-site cellular facility operated by them, including the specific channels employed; the effective radiated power; the height above ground of the transmitting antenna; the height above average terrain of the transmitting antenna; intermodulation products observed at the antenna feedline; receive strength of undesired signals observed pursuant to testing at 30 degree radials at a distance of 50 meters from the antenna supporting structure of the facility, which levels

are greater than -90dbm; and such other reasonable and relevant information as may be determined by the Cellular Data Warehouse. All such information shall be certified by the operator's Contact Personnel.

(ii) Cause to be recorded with the Cellular Data Warehouse the names, addresses, telephone number, email address, geographic areas of responsibility, and title of each person designated by the operator to serve as its Contact Personnel for receiving and responding immediately to all inquiries or complaints of harmful interference, and participation in resolution of all such complaints, including providing to the Contact Personnel the authority to discontinue operations of any low-site cellular facility.

(iii) Cause to be recorded with the Cellular Data Warehouse information which identifies the location of all cell sites operated by the low-site cellular facility operator, which includes the call sign, geographic coordinates and street address of all such cell sites.

(iv) In the event that the operator of low-site cellular facility changes the technical characteristics of an existing facility or the identity of its Contact Personnel, the operator shall inform the Cellular Data Warehouse of such amendments to its information including all revised recording of intermodulation products and receive strength of undesired signals, with such amendments to be received by the Cellular Data Warehouse no more than two days following the making of such change.

(b) Operators of low-site cellular facilities shall cause each such facility to be operated in accord with the following restrictions:

(i) No facility will be operated at power levels of greater than 20 watts effective radiated power

(ii) No facility will be operated on frequencies below 861 MHz, except such sites as exist upon the adoption of this rule.

(iii) No facility will employ downtilt antennas which direct the signals more than 20 degrees downward from the horizontal plane.

(iv) No facility will be situated such that the level of the surrounding terrain within 100 meters of the facility is situated less than 20 meters below the height of the antenna.

**(v) No new facility will be made operational, except for testing purposes, until that information required according to this rule section, is provided to the Cellular Data Warehouse.**

**(vi) All facilities existing upon the adoption of this rule will be identified by location, call sign, antenna height above ground, channels employed, and AAT of the antenna, within 120 days following the adoption of this rule, with such information to be provided to the Cellular Data Warehouse.**

**(vii) All facilities will be deemed operated on a secondary basis, subject to the acceptance of interference and the requirement to discontinue operation in the event that any such facility creates interference.**

**(viii) All facilities will be capable of discontinued operations within one hour of receipt by Contact Personnel any emergency request made by a public safety entity.**

**(ix) Notwithstanding the foregoing, operators may request specific waivers of these restrictions for individual facilities which are situated on mountaintop or at remote locations, which waiver requests must be served on licensees of all 800 MHz facilities within a 35-mile radius of the subject facility for the purpose of allowing those licensees to comment upon such requests.**

**(c) Upon being informed by the Cellular Data Warehouse or the Commission's personnel or directly by an operator complaining of interference from the operation of a low-site cellular facility, the operator of that facility will perform the following:**

**(i) Direct all such communications to the operator's Contact Personnel for resolution.**

**(ii) If the communications includes an emergency request for assistance from a public safety entity, the operator will immediately direct its personnel to discontinue operation from the suspected facility, which discontinuation of operation will occur within one hour following receipt of the emergency request.**

**(iii) If no emergency request from a public safety entity is included in the interference complaint, the Contract Personnel will dispatch personnel to examine and test the suspected facility for operations which might be creating the harmful interference. If the operator's personnel is unable to resolve the harmful interference within forty eight hours of the operator's**

**receipt of the complaint, the facility's operation will be discontinued until such resolution is achieved.**

**(iv) All persons making complaints of harmful interference and responding to such complaints are required to act with full candor with each other and the Commission's personnel, provide all necessary information regarding the interference, supply reasonably all personnel required to cooperate in resolving the interference, and participate in ongoing discussions regarding the correction of any interference problem.**

**(v) In the event that a responding operator determines that the cause of the interference is due to, in whole or in part, the operation by another carrier operating another cell situated within 100 meters of the operator's suspected cell, the responding operator shall notify the other carrier and the other carrier and its operation of that cell shall be subject to the rules contained within this section.**

**(vi) Within ten days following the resolution of the interference, the responding carrier(s) shall cause to be recorded with the Cellular Data Warehouse a report of the complaint and the resolution of the complaint, including all relevant technical information and comments by all interested persons.**

The foregoing rules have been specifically designed to provide those technical solutions most often alluded to in the comments offered within this proceeding. The offering of these proposed rules is intended for two reasonable purposes: (1) to provide those rules which would rapidly move the industry toward greater cooperation and efforts in performing interference resolution and (2) to initiate necessary substantive discussions among affected persons which focus on specifics, rather than generalities.

SBT avers that adoption and implementation of the foregoing rules, absent rebanding at 800 MHz, would result in sufficient protection from and reaction to incidents of interference to allow further study and consideration of long-term solutions. The cost of implementation would be minimal and would be no more than might reasonably be expected from persons who are

acting in accord with the Commission's existing rules. The key elements of the foregoing are first, that entities operating low-site cellular facilities would be made fully aware of their duties to avoid and resolve interference and, second, the information recording function to provide affected operators and reacting carriers the necessary information to resolve expeditiously all incidents of harmful interference, with a reasonable avenue for Commission oversight and to provide guidance for further development of low-site cellular facilities in a manner which is more respectful of spectrum neighbors.

#### Conclusion

As has been made apparent, SBT has carefully studied and considered all comments submitted within this proceeding. SBT has sought to balance cost, equity, time, the public interest, and the rights of affected parties, in an effort to seek resolution of the problem in a manner which will not unduly burden innocent non-interfering parties, while providing substantive proposals for resolution that will be financed by those entities causing the interference and concurrently receiving a substantial economic benefit from operation of those facilities. Nothing contained within those proposed rules above is either cost prohibitive or unreasonable. To the contrary, the rules are intended to reflect good engineering practices and the duties of licensees to avoid and correct incidents of harmful interference. SBT believes that adoption of those rules will promote cooperation among licensees and, thus, provide greater, needed protection of analog operators.

SBT does support relocating public safety to the 700 MHz band as a long-term solution and have advocated a method of financing that relocation which does not burden the agency's

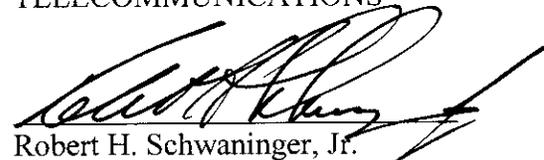
resources, require federal funding initiatives, or include a difficult legislative hurdle. SBT does not support any rebanding of the 800 MHz spectrum and each such proposal must be seen as costly, subject to delay, likely to spawn litigation and appeals, bereft of reasonable methods of financing, creating unnecessary uncertainty in the market, and unduly burdensome on small business and public safety licensees. In the event that the Commission disagrees with the foregoing, SBT strongly advocates that limited rebanding identified herein as only a worst case scenario, with the caveat that SBT's rebanding proposal, like all others, is unlikely to improve present conditions unless fully coupled with technical solutions, which solutions will go much farther toward solving the problem than any rebanding proposal.

Accordingly, SBT respectfully requests that the Commission take those actions suggested herein and adopt the technical rules solicitously offered.

Respectfully submitted,

SMALL BUSINESS IN  
TELECOMMUNICATIONS

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