

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)
)
Modification of the Universal Licensing) RM No. 11308
System to Allow TV Pickup Stations)
and Remote Pickup Stations to Document)
the Locations and Heights of Their)
Receive-Only Sites)
)

To: The Commission

The Society of Broadcast Engineers, Incorporated (SBE), the national association of broadcast engineers and technical communications professionals, with more than 5,000 members world wide, hereby files its *ex parte* comments in response to the Sprint Nextel comments to RM-11308. RM-11308 proposes to modify the Universal Licensing System (ULS), and FCC Form 601, to allow TV Pickup licensees to document the location(s) and height(s) of their electronic news gathering (ENG) receive only (RO) sites, and also to allow Remote Pickup (RPU) licensees to similarly document the location(s) and height(s) of their RPU-RO sites.

I. The Sprint Nextel Comments Mischaracterize the SBE Proposal

1. The primary goal of this SBE Petition for Rulemaking (Petition), which has now become RM-11308, is to make it easier to prevent interference to ENG-RO sites by documenting the locations of those sites. It is difficult for anyone to protect something it doesn't know about, and cannot easily discover. All SBE is asking for is a minor modification to the ULS to make it easier for other users of the RF spectrum to avoid inadvertent interference to ENG-RO sites. This includes not only FCC licensees, but also non-FCC licensees, such as the Department of Defense (DoD).

2. Seven parties filed comments regarding RM-11308: The National Association of Broadcasters (NAB), CBS Corporation (CBS), Cox Broadcasting, Inc. (Cox), the Walt Disney Company (Disney/ABC), Tribune Company (Tribune), Sprint Nextel, and, of course, SBE. All but one, Sprint Nextel, supported the RM, and urged the Commission to proceed to a Notice of Proposed Rulemaking. Sprint Nextel opposed the RM, but the reasons given show that Sprint Nextel fundamentally misunderstood the SBE proposal. More troubling, Sprint Nextel apparently does not understand the existing obligation of a commercial mobile radio service

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(CMRS) licensee to protect an earlier-in-time ENG-RO site.¹ Accordingly, SBE is filing these *ex parte* comments.

3. The Sprint Nextel filing claims that SBE Petition for Rulemaking (Petition) is proposing a prior coordination notice (PCN) requirement for CMRS operators with respect to ENG-RO sites. The filing further goes on to claim that the SBE Petition asks that CMRS licensees be required to notify “BAS licensees” prior to constructing and operating such base stations. Finally, the Sprint Nextel comments claim that the proposal would require CMRS base stations to delay testing and operation until filters have been installed on ENG receivers.

4. These claims are all mischaracterizations of the SBE proposal. First, nowhere is the original September 6, 2005, SBE Petition, or in the SBE February 17 comments, was a PCN requirement proposed. There was no suggestion in the SBE Petition that a CMRS licensee would be *required* to first notify a TV Pickup licensee (and most certainly not all “BAS licensees,” which would be a ridiculously large universe of licensees) having an ENG-RO site that would be close to a CMRS base station. While the February 17 SBE comments did offer the possibility of equipment tests by a newcomer CMRS base station, such tests would be voluntary. But, if voluntarily conducted, in the spirit of being a good spectrum neighbor, should those tests reveal interference to an existing ENG-RO site licensed to an earlier-in-time TV Pickup station, those tests could then be put on hold until the necessary filters were added to the CMRS base station (if the interference mode was one of adjacent channel leakage, due to excessive out of band emissions (OOBE) by the CMRS base station) or until filters were added to the ENG-RO site (if the interference was due to brute force overload (BFO)). That’s all these entirely reasonable *possible* mitigation measures were: a suggestion. Nowhere in the SBE filings was there any proposal that these steps would be mandatory.

5. Thus, the Sprint Nextel filing does a disservice to broadcasters, by so negatively mischaracterizing the SBE proposal. The fact that SBE filed its RM-11308 comments five days early, and sent a copy of those comments to Sprint Nextel on the date they were filed, so Sprint

¹ For example, Sections 22.352, 22.601(b) and 22.917(d) of the Part 22 Public Mobile Services rules; Sections 24.133(c) and 24.238(d) of the Part 24 Personal Communications Services rules; and Sections 27.53(h), 27.58 and 27.64 of the Part 27 Miscellaneous Wireless Communications Services rules. Also Sections 303(f) and 316 of the Communications Act of 1934, as amended. And, of course, the entire WT Docket 02-55 rulemaking (De-interleaving of the 800 MHz SMR band, to solve a "near-far" problem between 800 MHz public safety communications and Sprint Nextel Enhanced SMR (ESMR) base stations. Further, the August 6, 2004, WT Docket 02-55 Report & Order (R&O) made it perfectly clear that interference could not be caused to 800 MHz public safety operations, regardless of the underlying interference basis. That is, even if caused by an ESMR base station meeting all FCC technical standards, and using transmitters meeting all FCC equipment certification requirements, the ESMR-into-SMR interference had to be resolved. See the July 8, 2004, FCC Public Notice "FCC Adopts Solution to Interference Problem Faced By 800 MHz Public Safety Radio Systems."

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Nextel would be aware of the Section II “What the Petition Does *Not* Propose” portion, makes the distortions of the Sprint Nextel comments all the more inexplicable to SBE.²

II. The Sprint Nextel Claim That It Is Not Aware of CMRS Base Station Interference Into ENG-RO Sites is Surprising

6. SBE was surprised to read in the Sprint Nextel filing that it is not aware of any interference cases between a CMRS base station and an ENG-RO site, and that the SBE Petition is a “solution looking for a problem.” PCS base station-into-ENG-RO interference is such a chronic problem that one company, Phillips Microtechnology Inc, has developed a line of special purpose PCS band stop/TV BAS band pass filters. See the attached Figure 1, containing pertinent excerpts from the Phillips Micotechnology website, <http://www.tvtower.com/start.html> (reproduced with permission). SBE points Sprint Nextel's attention and the Commission's attention to the following portions of the site:

- PCS Cell Site Interference at KAKE-TV: Before and After Upgrade
- RF Interference to New Antenna Systems
- XM Radio: High Power Interference for 2 & 2.5 GHz ENG Users
- Causes and Cures for Interference to Microwave Receive Systems
- Locations of US Military Bases & Contacts to Report Interference caused by Military and Other Government Agencies
- Primer for High Power PCS and List of Field Engineers To Contact

SBE agrees completely with the Phillips Microtechnology website statement that

If a broadcaster can make fairly clean ENG shots at 11 PM, but can't do clean shots at Noon and early evening, PCS cell phone sites are probably the culprit. PCS cell phone sites are heavily used at these times. 2,110–2,155 MHz will soon join PCS (above BAS Channel 7).

Obviously, a commercial entity such as Phillips Microtechnology would not manufacture custom filters for ENG-RO sites, and stay in business doing so, if BFO and/or OOBE interference from adjacent band, high-power, CMRS base stations wasn't a problem.

7. SBE finds it ironic that these ENG-RO OOBE and BFO problems are virtually identical to the problems that triggered the WT Docket 02-55 rulemaking, to de-interleave the 800 MHz Specialized Mobile Radio (SMR) band. Namely, even a state of the art, high-quality receiver

² Footnote 7 to the Sprint Nextel filing incorrectly characterizes the February 17 SBE comments to RM-11308 as *ex parte*. This is incorrect. Those SBE comments were timely filed comments to RM-11308.

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used by a responding public safety person will cease to function if it's only a block or so away from an adjacent-channel Enhanced SMR (ESMR) Sprint Nextel base station, but several miles from its own conventional high power, high site SMR base station. That is, it is a near-far problem: If the receiver is far from its desired transmitter, and the undesired adjacent-channel or adjacent-band transmitter is too close to that receiver, interference will result. The interference mode may be to OOBE, BFO, or a combination of both problems.

8. The analogy between public safety responders with radios that quit working when they get too close to an adjacent-channel Sprint Nextel base station, and an ENG-RO site that has a relatively high power CMRS base station built close to it, is virtually perfect: The interference caused to the ENG-RO site can then be due to OOBE (seen as an in-channel interfering signal by the ENG receiver), or due to BFO to the low noise amplifier (LNA) typically used by receivers at ENG-RO sites, or a combination of both problems. Further, SBE notes that the WT 02-55 R&O made it clear that if the interference to an 800 MHz SMR public safety service is due to OOBE, additional filtering for the ESMR base station will be required.³ This is a common approach in the FCC Rules for various radio services: The Rules specify a minimum OOBE suppression requirement that must always be met, even if there is no indication that interference is being caused. But, if there is evidence that OOBE are causing interference, then additional suppression, to eliminate that interference, will then be required.

9. If a CMRS operator wants to do things the "hard way," and chooses not to check to see if any of its planned base stations would be in close proximity to an ENG-RO site, that would be its prerogative. However, that decision would in no way exempt a CMRS operator from its obligation to not cause interference to an earlier-in-time ENG-RO site of a licensed TV Pickup station.

III. Documented Cases of CMRS Base Station Interference to ENG-RO Sites

10. Sprint Nextel indicates that it is unaware of any CMRS base station-into-ENG-RO interference cases. Accordingly, SBE queried its volunteer BAS coordinators, and Phillips Microtechnology, for documented cases of such interference. Those cases are listed in the attached Figure 2. SBE submits that this list shows that Sprint Nextel is sadly uninformed, or disingenuous, regarding CMRS-into-ENG-RO interference.

³ See the August 6, 2004, WT Docket 02-55 R&O, at Paragraphs 10, 13, 17, 19-20, and 89-95.

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IV. No CMRS Entity, Including Sprint Nextel, Objected to the SBE WT Docket 04-356 Proposal Calling For a Tighter OOB Limit for 2 GHz AWS Stations

11. At Footnote 5, the Sprint Nextel comments question the SBE ENG-RO interference threat distances of 7 kilometers for an OOB limit of $43 + 10\log(\text{TPO}_{\text{watts}})$, and 0.5 kilometers for a tighter $67 + 10\log(\text{TPO}_{\text{watts}})$ OOB limit. These figures came from the December 8, 2004, SBE comments to WT Docket 04-356 (Service Rules for 2 GHz Advanced Wireless Services (AWS) Stations). As was noted in the February 8, 2005, SBE reply comments to that rulemaking,

1. None of the comments filed by commercial mobile radio service (CMRS) operators addressed the out of band emissions (OOB) interference threat to highly sensitive 2,025-2,110 MHz TV Broadcast Auxiliary Service (BAS) receive sites, widely used in support of electronic news gathering (ENG) operations. While several CMRS entities (e.g., Sprint) filed comments concluding that stricter OOB limits were needed to avoid CMRS-into-CMRS adjacent channel/adjacent-band operations, these analyses did not address the impact of AWS OOB into 2 GHz TV BAS operations.

2. Accordingly, SBE finds nothing in the filed comments to refute its contention that a more stringent OOB mask of at least $67 + 10\log P$ decibels (where P is the transmitter power output (TPO) in watts) is needed for 2,020-2,025 MHz AWS base stations to ensure that interference is not caused to ENG receive only (RO) sites, and further that no AWS base station may be located within 0.5 km of an existing ENG receive only site without installing stricter OOB filters, sufficient to ensure that the noise floor of the ENG RO site is not degraded by more than 0.5 dB. To ensure that AWS base stations are not inadvertently sited close to an ENG RO site, proposed CMRS AWS base station sites within 0.5 km of a 2 GHz ENG receive only site should be another exception⁴ to area licensing.

12. The SBE WT 04-356 comments (*not* the SBE RM-11308 Petition) proposed a minimum distance separation for 2 GHz AWS base stations of at least 0.5 km to an ENG-RO site (but only if the tighter OOB specification was also adopted). If an AWS licensee nevertheless chose to install its base station within less than 0.5 km of an ENG-RO site, under the SBE WT 04-356 proposal it would then be subject to an equipment test requirement, and the installation of appropriate filters, *if necessary*, before commencing regular operation. *Again, neither Sprint Nextel, or any other CMRS operator, objected to this SBE proposal in their reply comments.* Indeed, Sprint argued in favor of a more stringent OOB limit for 2 GHz AWS stations.⁵ Sprint further admonished the Commission that

⁴ Existing exceptions to area licensing are (1) stations requiring coordination pursuant to an International agreement; (2) stations that would require an Environmental Assessment pursuant to Section 1.1307 of the FCC Rules; (3) stations that would affect a radio quiet zone; and (4) stations that would require FAA notification and approval, and an FCC Antenna Structure Registration (ASR).

⁵ From the December 8, 2004, joint Sprint-Verizon comments to WT Docket 04-356, at Page 23:

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In establishing technical rules to prevent interference to existing services, the Commission must ensure that all forms of interference are adequately addressed.⁶

Thus, it is both contradictory, and inappropriate, for Sprint Nextel to now try to raise WT Docket 04-356 issues, in a non-timely manner, in this RM-11308 venue. RM-11308 only addresses the modification of the ULS, and FCC Form 601, to allow TV Pickup licensees the option of documenting the locations and heights of their ENG-RO sites. Finally, SBE notes that a Report & Order to the WT 04-356 rulemaking is still pending.

V. Summary

13. For the above cited reasons, SBE urges the Commission to discount the misinformed Sprint Nextel comments to RM-11308, and to proceed forthwith to a Notice of Proposed Rulemaking (NPRM), as supported by the NAB, CBS, Cox, Disney/ABC, Tribune, and, of course, SBE comments to RM-11308. When an NPRM is issued, SBE will participate in that rulemaking. And, Sprint Nextel will have the opportunity to file comments and reply comments to that rulemaking.

Neither -60 dBm/MHz OOB limit nor the -66 dBm/MHz limit suggested by the Commission is sufficient to protect existing PCS operations. As explained in the V-COMM report, neither of these limits is reflective of the receiver sensitivity of today's PCS handsets. Specifically, the test data shown that in-band (AWGN) causes interference to CDMA calls at a level of -117 dBm/MHz, which would require an OOB limit of -76 dBm/MHz to protect mobiles 1 meter away.

⁶ From the December 8, 2004, joint Sprint-Verizon comments to WT Docket 04-356, at Page 10.

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List of Figures

13. The following figures or exhibits have been prepared as a part of these *ex parte* comments to RM-11308:

1. Excerpts from the Phillips Microtechnology website
2. List of TV stations that purchased a Phillips Microtechnology SuperFliter, to solve a CMRS-into-ENG-RO interference problem, or otherwise reporting a PCS or CMRS base station interference problem to one of their ENG-RO sites.

Respectfully submitted,

Society of Broadcast Engineers, Inc.

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SBE President

/s/ Dane E. Ericksen, P.E., CSRTE, 8VSB, CBNT
Chairman, SBE FCC Liaison Committee
Chairman, ATSC TSGS3 Specialist Group on Digital ENG

/s/ Christopher D. Imlay, Esq.
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March 2, 2006

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Certificate of Service

This is to certify that a copy of the foregoing *ex parte* comments of SBE, Inc. was sent by first class U.S. mail coincident with the electronic filing in the Electronic Comment Filing System (ECFS), to the following:

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Excerpts from the Phillips Microtechnology Web Site

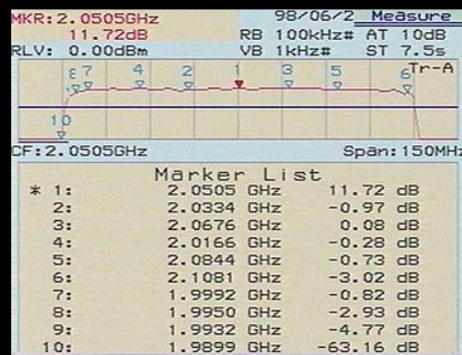
WHEN IT HAS TO WORK THE FIRST TIME: We give you up to 140 db out-of-band rejection!

Our LNAs have an IP3 around +50 dbm (about 30 dbm higher than the average). This prevents intermod (mixing of signals), and allows you to receive weak signals next to powerful STL carriers. Amplifier gain is custom set for your individual site.

Specializing in ENG Filters, LNA Systems, and Upgrades from 10 Mhz to 110 GHz.

Call: **PHILLIPS MICROTECHNOLOGY, INC.**

1-888-828-8775



This is the actual response of 1 of 2 Systems installed at WCAU-TV, Philadelphia PA.

1. Marker 1 shows the System Midband Gain to be 11.72 dbm, referenced to 0.00 dbm.
2. Markers 2, 3, 4, 5, and 7 are reference points within the passband.
3. Marker 7 is a reference for the center of channel 1. A fully modulated video carrier for channel 1 is down only 2.11db (Marker 8 *minus* Marker 7). Not bad for going through 30 sections of filtering!
4. Markers 6 and 9 are upper and lower outside bandpass edges for channels 1 and 7.
5. Marker 10 shows that the WORST CASE PCS attenuation is -63.16 db at the highest modulated edge of the PCS assignment adjacent to the Broadcaster's BAS (Broadcast Auxillary Service) 2 GHz band. Attenuation then sharply increases to beyond 140 db.

FIELD PROVEN AGAINST PCS SINCE 1996. WE HAVE PROTECTED ENG SITES LOCATED IN THE MAIN LOBE OF PCS ANTENNAS 12 FEET AWAY.

One hour FREE Consulting: **1-888-828-8775**



Excerpts from the Phillips Microtechnology Web Site

ENG/STL receivers rely on external high-selectivity filtering ahead of the LNA to eliminate overload and desense from out of band Radar, PCS, XM-Radio, and other RF sources.

We are the oldest Corporation in the U.S. for eliminating these unwanted signals, and providing you with reliable long-range communications in today's crowded bands. In addition, our SAW filters will eliminate Adjacent Channel interference.

KABC-TV's Mt Wilson ENG Receive Site uses our SuperFilter/LNA 50' from a UHF HDTV Transmit Antenna

When KABC's ENG Site was blasted by the 3rd harmonic of a new HDTV Station only 50 feet away, we got a call at 2 pm. By 7:30 pm a completely new LNA system was on its way overnight to be installed the following day. It had 120 db attenuation at the offending frequency and PCS frequencies, but still allowed their helicopter to produce clean pictures, with its high sensitivity, and 50 db IP3 LNA.

WGN-TV and Chicago's CLTV 24hr Cable News Channel both use our SuperFilter/LNA

As the noise floor increases, and the range on ENG (BAS) channels appears to decrease, with ENG channels becoming "noisy" or having horizontal flashes going through the video, and in some cases, having some channels totally unusable, many more stations with relatively new "state of the art" antenna systems are upgrading to our LIGHTNING PROOF SuperFilter/LNA.

When KSAT-TV wanted a lightning

KTKA-TV uses our 38 db gain SuperFilter/LNA for 75 mile Live Shots.

We have Ultra Sensitive, Ultra Selective RF Antenna Systems & UPGRADES from 10 MHz to 40 GHz

We Custom Design each SuperFilter/LNA Systems to YOUR Individual needs, with custom selectivity and gain for high RF areas. Eliminate RF interference before it hits your equipment.

WSOC-TV, Charlotte North Carolina, has had 5 SuperFilter/LNAs in operation since 1995

WMAR-TV's ENG Receive Antenna is 12 Feet from a Rooftop PCS CELL SITE

WMAR-TV's ENG Receive Antenna looks directly into the main lobe of a rooftop PCS site 12 feet away, pumping out hundreds of watts per channel. Their new MILLENNIUM receiver would not work. They installed our SuperFilter, and can now cleanly receive 2 Ghz Band,



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Excerpts from the Phillips Microtechnology Web Site

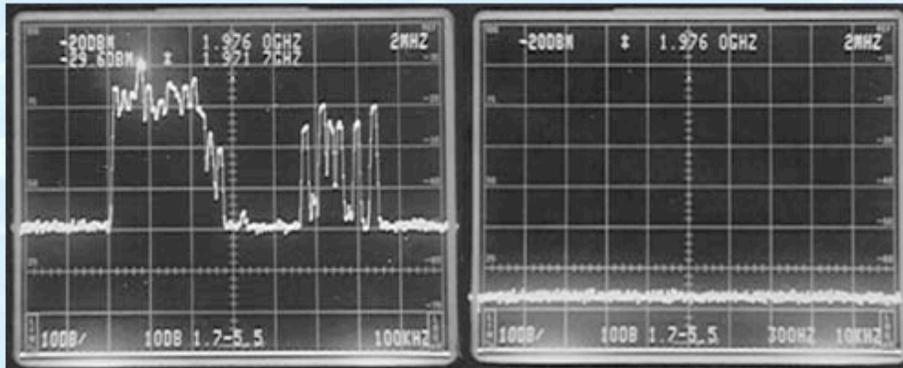
<p>PCS frequencies, but still allowed their helicopter to produce clean pictures, with its high sensitivity, and 50 db IP3 LNA.</p> <hr/> <p>WOR-TV used our SAW Filters in their ENG Receivers atop the World Trade Center until its demise on 9-11.</p>	<p>antenna systems are upgrading to our LIGHTNING PROOF SuperFilter/LNA.</p> <hr/> <p>When KSAT-TV wanted a lightning proof LNA, we sent them our SuperLNA. Now they get coverage from places they previously had no signal at all.</p>	<p>equipment.</p> <hr/> <p>WSOC-TV, Charlotte North Carolina, has had 5 SuperFilter/LNAs in operation since 1996.</p> <p>Charlotte N.C. was one of the first test cities for PCS.</p>	<p>would not work. They installed our SuperFilter, and can now cleanly receive 2 Ghz Band, including Channel 1. All interference is gone, and the noise floor is -94dbm!</p>
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BEFORE and AFTER

TV News Bureaus: Beat your Competition!

Add our SuperFilter/LNA to your NEW or OLD ENG or STL Receive System. Our "Lightning Proof" SuperFilter/LNA Systems remove interference & increase range!

140 db Out Of Band Rejection for ENG and STL Sites!



Pictures courtesy of Mr. Larry Means at [KAKE - TV](#)
KAKE-TV Downtown ENG site with PCS Cell Phone transmitters nearby:
1) BEFORE - With Original Horn Antenna System
2) AFTER - After our SuperFilter/LNA Upgrade

>>> SITE SURVEYS <<<

>>> INTERFERENCE ID FOR MILITARY & COMMERCIAL SYSTEMS <<<

>>> [ANTENNAS for 2 & 2.5 Ghz ENG/STL](#) <<<



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List of TV Stations with ENG-RO Sites Reporting PCS Base Station Interference, or That Have Purchased a Phillips Microtechnology SuperFilter, To Solve a CMRS Base Station Interference Problem

KABB, San Antonio, TX
KABC-TV, Los Angeles, CA
KAIT, Jonesboro, AR
KAKE-TV, Wichita, KS
KAPP, Yakima, WA
KARK-TV, Little Rock, AR
KCNC-TV, Denver, CO
KPLC, Lake Charles, LA
KSAT-TV, San Antonio, TX
KTKA-TV, Topeka, KS
KVEW, Kennewick, WA
KWTX-TV, Waco, TX
KXLY-TV, Spokane, WA
WAFF, Huntsville, AL
WAGA-TV, Atlanta, GA
WAGM-TV, Presque Isle, ME
WBBH-TV, Fort Meyers, FL
WBBM-TV, Chicago, IL
WBRE-TV, Wilkes-Barre, PA
WBTW, Charlotte, NC
WCAU, Philadelphia, PA
WCJB, Gainesville, FL
WCTV, Thomasville, GA
WDAM-TV, Laurel, MS
WEAR-TV, Pensacola, FL
WEAU-TV, Eau Claire, WI
WFIE-TV, Evansville, IN
WFLD, Chicago, IL

WFRV-TV, Green Bay, WI
WFSA, Montgomery, AL
WGAL, Lancaster, PA
WGGB-TV, Springfield, MA
WGME-TV, Portland, ME
WGN-TV, Chicago, IL
WHAS-TV, Hagerstown, MD
WHP-TV, Harrisburg, PA
WIS, Columbia, SC
WLOX, Biloxi, MS
WMAR-TV, Baltimore, MD
WMDT, Salisbury, MD
WMTV, Madison, WI
WNBC, New York, NY
WOFL, Orlando, FL
WPMT-TV, Mobile, AL
WPMT, York, PA
WPTV, Palm Beach, FL
WRC-TV, Washington, DC
WROC, Indianapolis, IN
WSOC-TV, Charlotte, NC
WTLV, Jacksonville, FL
WTOG, St. Petersburg, FL
WTOL, Toledo, OH
WTVA-TV, Tupelo, MS
WTWC, Tallahassee, FL
WWOR-TV, New York, NY
WWL-TV, New Orleans, LA



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**List of TV Stations with ENG-RO Sites Reporting PCS Base Station Interference, or
That Have Purchased a Phillips Microtechnology SuperFilter, To Solve a
CMRS Base Station Interference Problem**

WWLP-TV, Springfield, MA

WWTW, Cadillac, MI

WYFF, Greenville, SC

Note: This list is almost certainly not comprehensive. A more comprehensive listing can be provided at the NPRM stage, if necessary.

