Electronic news gathering & wireless interference

How T-Mobile collaborates & achieves success with broadcasters.

A Broadcaster’s View of T-Mobile
According to one progress report from a television broadcaster headquartered in the Midwest:

“T-Mobile is the only company in this group that is taking aggressive action to ensure that their operations do not interfere with BAS operations in the adjacent band.”

“While there were some issues with coordination early on in the process, T-Mobile takes (CFR 47, Part 27) extremely seriously and has made consistent and comprehensive efforts to work with our industry and ensure that they do not interfere with our operations.”

The Background
In 2006, the FCC conducted the Advanced Wireless Service (AWS-1) auction. Some of the AWS-1 spectrum is directly adjacent to Broadcast Auxiliary Service (BAS) spectrum – radio frequency used by radio and/or television broadcasters when transmitting remote stories back to a station's broadcast control antennas.

Such electronic news-gathering (ENG) and use of BAS spectrum is important to broadcasters. Even though this transmission is not intended for direct broadcast to consumers, transmission of stories back to the station is critical so that mobile reporters, editors or cameramen can communicate and present breaking news.

T-Mobile is the Un-carrier. We aggressively work for consumers and operate our network in ways that separate us from our competition.

T-Mobile has a successful track record of working collaboratively with broadcasters. We are committed to this same approach whenever we acquire new spectrum and interference issues need to be addressed.
The Challenge
When people and businesses use wireless technology, there is always the possibility of interference occurring across closely aligned spectrum – the ‘electronic highways’ upon which radio frequency waves travel. This interference is more than a nuisance to end-users and to the companies that are using this spectrum – whether they are radio or television broadcasters or wireless carriers, like T-Mobile.

The Federal Communications Commission (FCC) makes it clear that such interference does not meet legal and/or regulatory guidelines. Because the FCC controls licensing of spectrum to broadcasters, wireless carriers, the military and others, the federal agency requires these licensees to resolve any interference issues that arise.

When T-Mobile purchased significant amounts of this AWS spectrum, the wireless carrier knew the requirements of the FCC included the following (CFR 47, Part 27):

“AWS operators must protect previously licensed broadcast Auxiliary Service (BAS) or Cable Television Radio Service (CARS) operations ... In satisfying this requirement AWS licensees must, before constructing and operating any base or fixed station, determine the location and licensee of all BAS or CARS stations authorized in their area of operation, and coordinate their planned stations with those licensees.”

The Epilogue
According to an article published in TV Technology magazine written by Dane Ericksen:

“To its credit, T-Mobile has taken seriously its obligation under ... the FCC Rules ... To solve the AWS-into-TV BAS problem, T-Mobile ... worked with a California filter manufacturer, Commercial Microwave Technology, Inc. (CMT).”

“What CMT came up with was pretty amazing, in this writer’s opinion. Indeed, the late science fiction writer Arthur C. Clarke wrote, ‘Any sufficiently advanced technology is indistinguishable from magic.’”

“The CMT filter comes close to meeting this ‘magic’ criteria.”

To read the complete TV Technology magazine article, please use this link: http://goo.gl/mFyJ5n

For More Information
To learn more about T-Mobile’s work with broadcasters – on Channel 51 repacking or concurrent operations, or regarding AWS-BAS interference – please contact Dan Wilson or Mark Combs:

DAN WILSON
Senior Manager, Spectrum Engineering
Dan.Wilson@T-Mobile.com | 425.383.2179

MARK COMBS
Senior Manager, Engineering Development
Mark.Combs@T-Mobile.com | 425.383.2015

The Results
1. T-Mobile conducted joint AWS-to-BAS laboratory testing to determine specific characteristics of the interference issues.
2. As a result of the lab tests, T-Mobile worked with California based Commercial Microwave Technology, Inc., to develop an AWS filter that would protect sensitive BAS transmissions by electronic news-gathering personnel.
3. Successful lab testing and field-testing were done in Seattle as well as with major broadcasters in New York City, Chicago, and any other markets where it was requested.
4. The filter’s performance has proved effective in all markets where it has been deployed. In fact, for almost a decade, T-Mobile’s competitors have used essentially the same filter that resulted from T-Mobile’s leadership.
5. Additional technology solutions were created with other stations, including bypass switches that were developed with Troll Systems, when they faced other technology issues.

(* Please note: CMT, Inc. was acquired by API Technologies Corp. in November 2011.)