



## 700Mhz – VHF Drive Test Frequently Asked Questions - FAQ

Q: What is the Drive Test?

A: It is a test commissioned by OWIN to compare functionality of 700MHz and VHF for use in Land Mobile Radio (LMR) voice and mobile data systems. The knowledge gained from the test is very important to the design process of an LMR system. Test results provide analysis of radio coverage in two distinct Oregon topographical areas: forested mountains and hilly semiarid.

Q: Why did OWIN have the Drive Test done?

A: There was only antidotal information available comparing 700MHz to VHF. OWIN needs fact based information to make decisions on. The information is important for siting of backbone locations to assure they will be effective sites for whichever Land Mobile Radio (LMR) system (700MHz or VHF) is deployed.

Q: Why not compare 800 MHz to VHF?

A: We could compare either 700 or 800 MHz as far as propagation (coverage) is concerned. Currently the 700MHz band has no other networks in Oregon. This makes building and ongoing management of the system easier. 700MHz is a cleaner solution than 800MHz for Oregon's public safety radio system.

Q: VHF coverage is much better than 700MHz, why do a test?

A: OWIN asked the industry for proof of this assumption/statement. No field studies were found on this specific topic. What was found was antidotal commentary based on analog experience and specifically the state of Colorado saying their new 700MHz system closely approximates the coverage of the VHF analog system it replaced. OWIN needs fact based information that follows engineering processes, the drive test provides that.



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Q: 700MHz requires many towers, why is OWIN considering it?

A: The assumption has been that 700MHZ requires 30% more towers than VHF. That assumption is based on experience with analog systems versus the digital systems OWIN will install. The Drive Test indicates that digital 700MHz coverage is perhaps 3-5% less than VHF. With adjustments, 700MHz radios may be able to deliver more signal improving to or beyond the 3-5% coverage loss.

Q: Which is best, 700 MHz or VHF?

A: The report does not say one is better. It does say that the two frequencies perform in a very similar manner.

Q: How many tests were done?

A: The Drive Test process tested the coverage for both 700MHz and VHF. There were three test sites in northwestern Oregon and one test site in northeastern Oregon. This means four test sites and eight-frequency test processes. Each location provided challenges to radio transmission and reception with respect to topology, and distance between transmitters and receivers. The test sites were a good representation of the kind of locations and conditions our public safety personnel work in on a daily basis.

Q: Is the test accurate?

A: Yes. The tests were compiled with a computer based measurement tool that captured signal strength and Bit Error Rate from multiple towers. There were two tests done, one in northwest Oregon and one in northeastern Oregon. These areas have very different topology (mountains & trees – rolling hills & semi-arid), which provided sampling of some of the most challenging coverage areas in Oregon. The tests were done with teams: OWIN staff and contractors. They checked each other's work to assure accuracy.



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Q: Does this mean the state is changing frequencies?

A: There have not been any decisions about changing frequencies at this time. Through the request for proposal (RFP) we will evaluate responses from vendors and decide what is the best radio system and associated frequency for Oregon.

Q: How will the Drive Test help OWIN?

A: The test provides hard data versus assumptions and antidotal information for decision-making. Such as siting of the backbone towers to assure sites will work for which ever solutions (700MHz or VHF) are offered by Land Mobile Radio (LMR) vendors. The test is available to vendors to use when making proposals to OWIN.

Q: What does 'narrowband' mean?

A: The FCC requires reducing the width (bandwidth) of Land Mobile Radios (LMR) systems below 512MHz by January 1, 2013. A common analogy of what the effect of this is: it adds more lanes to the radio highway so more traffic can travel the radio roadway.