

Modification to WC2XVG

Licensee is a Research and Development (R&D) Center of an automotive Original Equipment Manufacturer (OEM). Testing and tuning of new Antenna Under Test (AUT) designs for each new model Vehicle Under Test (VUT) and each new model year is required on a continuous basis to ensure antenna designs meet all functional/contractual requirements.

This FCC License Modification adds frequencies required to test radio systems for export, to include Digital Audio Broadcasting, e.g., 174-240 MHz, 1452-1492 MHz, DTV, and overseas telephone bands. Frequencies above 1 GHz are duplicated on both sites as may be necessary.

Special attention has been given to meeting requirements for testing near GPS frequencies, separated by 12.0 MHz according to the Air Force Spectrum Management Office. While a range of frequencies have been specified in some cases in the Aviation spectrum, spot frequencies (typically at 12.0 or 12.5 MHz intervals) will be used for testing, *not* swept frequency mode.

Performance Tests are on Far Field Test Ranges while the AUT/VUT is rotated 360 °. Test pattern performance requirements include minimum gain, maximum null limits, and (circular) polarization testing. Body design and antenna placement (e.g., in glass) affect antenna performance, notably nulls. Antenna Test site is on the infield of an Industrial Automotive Test Track in a rural area. Nearest incorporated town is 10 km away, not in either antenna azimuth direction. At any angle above horizontal (maximum 3 m height), the 'satellite' dish antenna will be pointing down (i.e., negative antenna angles) as rotated overhead (10 m max) at the VUT. Terrestrial applications are on a 100 m Test Range at a 2 (maximum 4) meter antenna height.

History shows the FCC is responsive to new broadband consumer applications of RF. OEM must be prepared to actively test new authorizations to research for automotive applications and meet consumer demand. Requirements for antenna Vendors to tune and prove their design performance to OEM specifications in prototype and actual body design requires us (R&D) to be able to test all current and future RF applications, some of which may not yet have been proposed for the 5 year duration of this license, in a Far Field environment.

Range Operator is a 35 year FCC General Radiotelephone (with Radar Endorsement) licensee charged with repair, improving, maintaining, updating, operating, and licensing the Far Field Antenna Test Ranges to enhanced capabilities, high technical standards, and accuracy. Range is operated by the R&D Licensee for proof of performance Testing. Multiple frequency ranges applied for to enable Licensee to be prepared to respond quickly in a *licensed* manner to current and future US and export spectrum requirements.