

**Caterpillar Inc.**

Cat Electronics  
P. O. Box 810  
Mossville, IL 61552-0810

9/6/2007

Mr. James Cole  
KTVK  
5555 N 7<sup>th</sup> Ave  
Phoenix, AZ 85013

Dear Mr. Cole:

This letter follows-up on our earlier telephone conversation. On behalf of Caterpillar, Inc. ("Caterpillar"), this letter requests the consent of KTVK, Inc., licensee of television station KTVK at Phoenix, Arizona for Caterpillar to conduct short (less than 15 seconds), low power radiofrequency ("RF") immunity testing on frequencies within your stations' channels of operation at Caterpillar's proving grounds near Green Valley, Arizona. It is expected that the proposed RF immunity testing would occur no more than ten times per year.

The technical details of Caterpillar's proposed RF immunity testing are set forth in the attached technical information pages. Some background information on Caterpillar's need to conduct this testing is provided below. We are asking for your concurrence because your stations are the channel 3 and 24 authorizations nearest to our Tucson proving grounds location.

Please review this letter and the attached technical information page. If Caterpillar's proposed testing is acceptable, please sign at the bottom of this letter where indicated and fax a copy to the undersigned.

**Background:** Caterpillar is a world-leading manufacturer of heavy construction equipment with corporate headquarters in Peoria, IL. During development, our products are subjected to extensive testing to ensure product quality and to demonstrate compliance with numerous international and domestic regulations and standards. In particular, RF immunity testing is required for product safety and to meet several European Union Directives. RF immunity testing involves subjecting a machine's control system electronics to an electromagnetic field to ensure that such fields do not affect the operation of the electronics and/or machine. This testing is very important due to the proliferation of wireless devices and services that could possibly interfere with Caterpillar's machine electronics.

In the past, it has been possible to perform the majority of this RF immunity testing indoors at the component or subsystem level. However, as machines have become more electrically complex, it is difficult or impossible to test certain subsystems apart from the machine. In these cases, machine-level RF immunity testing is required. In many cases, these machine level tests can be performed indoors in a shielded chamber. However, in a few cases, due to the size of some of our products, it is not always possible to find a chamber large enough in which to test the machine. The only practical way to test this subset of machines is to conduct the tests outdoors. This type of outdoor testing is viewed as an option of last resort, and as such, is conducted infrequently (several times per year at most).

Outdoor RF immunity testing consists of irradiating a machine with an electromagnetic field across a wide frequency range (typically 30 MHz to 2 GHz). Required field strengths range from 10 V/m to 100 V/m or more, depending on the standard in question. To produce the field, an antenna is placed in close proximity to the machine, with a signal generator and amplifier being used to produce the RF energy. The antenna utilized is typically a highly directional wideband log periodic antenna, which is pointed at the machine under test. Typical output power from the amplifier is less than .5 kW, depending on antenna efficiency at the frequency in question. Starting at the lowest frequency of interest, the signal generator is stepped through the frequency range in increments of several MHz, dwelling on any particular frequency for a duration of less than 10 seconds. The transmitted signal is either an unmodulated carrier or 80 percent AM modulated at 1 kHz.

**Request:** Caterpillar is in the process of obtaining an experimental license from the FCC for the purpose of conducting outdoor RF immunity testing at our two proving ground locations in the United States (near Green Valley AZ, and Peoria, IL). As an interim measure, Caterpillar has recently been granted a Special Temporary Authority (STA) by the FCC (callsign WC9XWS) to conduct the required testing at its two proving ground locations until such time as a grant of experimental license is obtained. This STA, however, excludes authorization to transmit on all frequencies used by FM radio and television facilities. To secure consent to operate on these broadcast frequencies, it was recommended that we coordinate locally with broadcast licensees to secure permission to conduct the RF immunity tests on these frequencies.

We believe that Caterpillar's RF immunity testing transmissions will not result in harmful interference to your station for the following reasons:

- The distance between your station and our proposed test location is such that the risk of harmful interference is minimal
- The proposed outdoor tests occur infrequently (once every several months at most)
- The dwell time at any particular frequency during testing is typically less than 10 seconds

- The power levels being transmitted during testing are low (.5 kW ERP max)
- The transmitting antenna will be in close proximity to ground level, which will greatly limit the range of the transmitted signal, and will be located in the center of Caterpillar property
- The transmitted signal will have a very narrow bandwidth (2 kHz max), which in itself reduces potential interference to television stations
- We propose to make these narrowband transmissions 2 kHz above the bottom of the channel edge, so as to further minimize interference potential to analog and digital TV stations
- Preliminary interference studies have shown that the probability of interference to the stations in question will be extremely low (see attached technical documentation)

Detailed technical information about our proposed operation, along with preliminary interference analysis, is attached.

If this request seems reasonable, we respectfully request that you sign at the bottom of this document where indicated and return a copy to the undersigned via facsimile and mail.

Thank you for your consideration. Please contact me if you have any questions about Caterpillar's proposed RF immunity testing.

Sincerely,

Andy Knitt  
Cat Electronics Advanced Engineering  
knitt\_andrew\_a@cat.com  
309-578-2724 Phone  
309-578-1383 Fax

REQUESTED CONSENT GRANTED:

By: Jim Cole  
Title: DIRECTOR OF TECHNOLOGY  
Date: 9-13-07

# FAX



**KVOA COMMUNICATIONS, INC.**  
P.O. Box 5188, Tucson, Arizona 85703-0188  
Studios at 209 W. Elm Street, 85705-6538

[www.kvoa.com](http://www.kvoa.com)

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Caterpillar Inc.

Cat Electronics  
P. O. Box 610  
Mossville, IL 61552-0610

9/25/2007

Mr. Gary Kabrick  
KVOA  
208 W Elm St.  
Tucson, AZ 85704

Dear Mr. Kabrick:

This letter follows-up on our earlier telephone conversation. On behalf of Caterpillar, Inc. ("Caterpillar"), this letter requests the consent of KVOA Communications, Inc., licensee of television station KVOA at Tucson, Arizona and K20FO at Sierra Vista, Arizona for Caterpillar to conduct short (less than 15 seconds), low power radiofrequency ("RF") immunity testing on frequencies within your stations' channels of operation at Caterpillar's proving grounds near Green Valley, Arizona. It is expected that the proposed RF immunity testing would occur no more than ten times per year.

The technical details of Caterpillar's proposed RF immunity testing are set forth in the attached technical information pages. Some background information on Caterpillar's need to conduct this testing is provided below. We are asking for your concurrence because your stations are the channel 4 and 20 authorizations nearest to our Tucson proving grounds location.

Please review this letter and the attached technical information page. If Caterpillar's proposed testing is acceptable, please sign at the bottom of this letter where indicated and fax a copy to the undersigned.

**Background:** Caterpillar is a world-leading manufacturer of heavy construction equipment with corporate headquarters in Peoria, IL. During development, our products are subjected to extensive testing to ensure product quality and to demonstrate compliance with numerous international and domestic regulations and standards. In particular, RF immunity testing is required for product safety and to meet several European Union Directives. RF immunity testing involves subjecting a machine's control system electronics to an electromagnetic field to ensure that such fields do not affect the operation of the electronics and/or machine. This testing is very important due to the proliferation of wireless devices and services that could possibly interfere with Caterpillar's machine electronics.

In the past, it has been possible to perform the majority of this RF immunity testing indoors at the component or subsystem level. However, as machines have become more electrically complex, it is difficult or impossible to test certain subsystems apart from the machine. In these cases, machine-level RF immunity testing is required. In many cases, these machine level tests can be performed indoors in a shielded chamber. However, in a few cases, due to the size of some of our products, it is not always possible to find a chamber large enough in which to test the machine. The only practical way to test this subset of machines is to conduct the tests outdoors. This type of outdoor testing is viewed as an option of last resort, and as such, is conducted infrequently (several times per year at most).

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- The proposed outdoor tests occur infrequently (once every several months at most)
- The dwell time at any particular frequency during testing is less than 10 seconds
- The power levels being transmitted during testing are low (.5 kW ERP max)

- The transmitting antenna will be in close proximity to ground level, which will greatly limit the range of the transmitted signal, and will be located in the center of Caterpillar property
- The transmitted signal will have a very narrow bandwidth (2 kHz max), which in itself reduces potential interference to television stations
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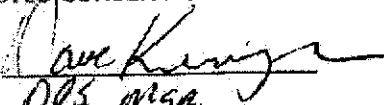
Sincerely,

Andy Knitt  
Cat Electronics Advanced Engineering  
knitt\_andrew\_a@cat.com  
309-578-2724 Phone  
309-578-1383 Fax

**REQUESTED CONSENT GRANTED UNDER THE FOLLOWING CONDITIONS:**

1. Caterpillar agrees to notify KVOA engineers at least 24 hours in advance of testing until KVOA has established that the testing is not resulting in viewer complaints.
2. Should Caterpillar or KVOA at any time receive complaints from viewers due to Caterpillar's operations, Caterpillar agrees to suspend operations upon notification from KVOA until such complaints are resolved.

**REQUESTED CONSENT GRANTED:**

By:   
Title: Ops mgr.  
Date: 09/25/07