

16-Mar-07

Question 7: Purpose of Experiment

- a) We need to test aircraft UHF COM radios operating in the 225-400 MHz band. The radios are installed in general aviation aircraft developed and manufactured by Cessna Aircraft Company, which are then sold to customers such as US Federal Agencies who are authorized to own and operate the radios.

The UHF radios being tested are certified for, and routinely used by Federal Agencies and DoD. Typical examples include the Bendix-King KTR-909B, Collins AN/ARC-210 and Wulfsberg RT-5000. The antennas are $\frac{1}{4}$ wave monopole aircraft blade antennas. Effective Radiated Power will always be less than 20 W mean. Modulating frequency and frequency stability can vary slightly between make and models of transmitters.

- b) The test is required by 14 CFR 25.1301(d), 25.1353(a) 25.1461(c) to certify that the 3rd subharmonic transmissions from the UHF radio will not interfere with ILS LOCALizer reception while on approach. Certification tests are required for each new aircraft configuration involving a UHF Com radio and ILS system. We anticipate two to three tests per year with a maximum of ten to twelve possible. The test procedure is as follows:

The aircraft must be on an ILS approach with the LOC receiver locked onto the LOC signal. **Transmit two to three seconds only** on the LOC 3rd harmonic and watch the LOC display for any signs of instability. Repeat on adjacent channels above and below the 3rd harmonic.

- c) Our last test was performed using Experimental STA WC9XSC, which expired 10-Oct-2006. We are seeking to reduce the time and effort expended by ourselves, the FAA and FCC to coordinate and process authorizations for these tests. For that reason we are requesting a license in lieu of an STA. We will need to perform these tests for many years to come. We are requesting a license term of 5 years, but even a 2 year term would be more efficient than repeated STAs. The FAA coordination information is attached as a separate exhibit to this application.

Very Respectfully,

Danny Hankins
Engineer-Sr-D
Cessna Aircraft Company