

Federal Communications Commission  
Experimental Radio service

**Subject :** Request for Special Temporary Authorization (STA)  
High Intensity radiated Field (HIRF) – Gardener, KS  
Ref 0546-EX-ST-2008  
Ref 0016-EX-ST-2008 (previously approved STA for an identical project)

This request is for a special Temporary Authorization (STA) is submitted in accordance with CFR 47, part 5.61. The purpose of this STA is to perform Low Level Swept Coupling (LLSC) testing on a General aviation category aircraft, for the purpose of aircraft threat development in the presence of High Intensity Radiated Field (HIRF). The threat development determines the required equipment bench test levels. This test is required to satisfy the HIRF certification directives found in exhibit 2. Further details are provided below.

**Name and Address of Applicant**

Garmin International  
1200 E.151st street  
Olathe, KS 66062  
Attn: David Kerr, Aviation Engineering

**Need for special action:** The tests to be conducted include the use of frequencies from 100 KHz to 18 GHz. Testing using widely spaced discrete frequencies would miss possible critical resonant frequencies. The proposed testing will include the following.

From approximately 500 KHz to 400 MHz, the aircraft under test will be illuminated with a known low level swept frequency electromagnetic field and the resulting induced cable bundle currents will be measured on the aircraft using current probes.

From 100 MHz to 18 GHz, the aircraft under test will be illuminated with a known low level swept frequency electromagnetic field and the resulting electromagnetic field strengths will be measured within the various compartments of the aircraft.

**Time and Date:** Testing is planned to occur between the dates of December 1 and June 1 of 2009.

**Location:** Proposed testing will occur at the Garmin Flight test facility at New Century Airport, Gardener, KS. This is a company owned facility at the coordinates N38 Deg, 53.307 Seconds, W094 Deg, 51.650 Seconds.

**Transmitting antennas and equipment**

Reference Exhibit 3

**Frequency Bands and Power:**

Reference exhibit 4 for a minimum list of specific frequencies required for bench level testing per the DO-160 equipment testing standard. For the purpose of expediting the test, we request the ability to sweep the test frequency across each of the approved test bands. The equivalent dwell time at each swept frequency is on the order of 1ms. Frequencies reserved for emergency services or local aircraft control will be omitted from the test. All transmitted signals are Continuous Wave (no modulation). The power levels requested are for maximum Effective Isotropic Radiated Power (EIRP) at the transmitter. Co-ordination with the local FCC and FAA can be accomplished as necessary.

Should you require additional information please contact David Kerr at 913 440 5208 or Email david.kerr@garmin.com

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