

## **LMCO-Syracuse IFF Coordination of Mode S Test Plan:**

Mode S testing scenarios: Factory Acceptance test procedures request the Mode S operation checking to consist of the following operation scenarios proposed. Minimal trials repeated for 2 hour periods occasionally within the allowed FCC Special Temporary Authorization dates. Proposed dates listed in the attached STA are 2/8/2011-3/8/2011:

1) Antenna rotation rate set to 5 or 10RPM. Apply Interrogator Identifier "II" (or SI) code address setting, and blanking 316-225 deg true north (per FCC license coordinated with the FAA). Set for a 3CS interlace for 2 "all-calls" interval for each mode in the interlace, plus "roll call" interval. This will achieve 2 hits per mode. Enable "Multi-Site Lock-Out protocol". Set the Mode S Probability of Reply (PR) setting to 50% maximum for the stochastic acquisition, and pulse repetition rate (PRR) 50Hz, to allow aircraft transponders to reply every other sweep (sweep is equivalent to Pulse Repetition Interval typically listed in FCC Operating licenses in Hz) . This allows aircraft transponders time to reply to other IFF's in the controlled airspace. Experiment to include UF11 (for All-Call), UF4 (for Roll-Call), and UF5 (for Roll-Call). The use of Combined Mode Interrogation (Mode S All-Call UF11 followed by Intermode with short "P4") will be minimized if not avoided.

2) The maximum detection range of the highest power IFF system used at LMCO in Syracuse is 250 nmi, per setting in step (1). Mode S "All-Call" will be interrogated at a PRF of 50 Hz (corresponding to 50 interrogations /sec). Mode S features a variable RF output control that reduces RF power automatically as a function of the aircraft range.

3) Once aircraft are acquired with the "ALL Call", they are switched over to Mode S "Roll Call" with settings per step (1). The IFF systems used in Syracuse will interrogate a given aircraft in Roll Call at a rate of 2 per scan. Once acquired in Roll Call, the Multi Site Lockout Protocol is enabled to lock out aircraft transponder replies to our future All/Call interrogations from our assigned II (SI) code.